

COUNTY BOROUGH OF WARRINGTON.

////////////////////

REPORT

ON THE STATE OF THE

PUBLIC HEALTH

FOR

1906.

BY

PRUDENCE E. GAFFIKIN, L.R.C.P. & S. EDIN

FOR THE LATE J. G. GORNALL, M.A., M.B.,

MEDICAL OFFICER OF HEALTH,

SUPERINTENDENT OF HOSPITALS, AND MEDICAL ADVISER

TO THE EDUCATION COMMITTEE.

AND

REPORT FOR 1906, OF F. G. RUDDOCK, F.I.C.,

PUBLIC ANALYST.



WARRINGTON:

MACKIE AND CO LD., SANKEY STREET.

County Borough of Warrington.

1906-7.

HEALTH COMMITTEE.

Mayor :

JAMES SMETHURST, Esq., J.P.

Chairman :

MR. COUNCILLOR JAMES EVANS, J.P.

Deputy-Chairman :

MR. COUNCILLOR BURTON, J.P.

MR. ALDERMAN TINNION, J.P.	MR. COUNCILLOR SANKEY.
„ COUNCILLOR BARTON.	„ „ STOTT, J.P.
„ „ CLEGG.	„ „ WILKINSON, J.P.
„ „ DR. JOSEPH	„ „ WILSON.

Town Clerk :

J. LYON WHITTLE, Esq.

HOSPITALS SUB-COMMITTEE.

THE CHAIRMAN.

THE DEPUTY-CHAIRMAN.

MR. COUNCILLOR BARTON.

MR. COUNCILLOR SANKEY.

„ „ CLEGG.

„ COUNCILLOR WILKINSON
(Convener).

„ DR. JOSEPH.

„ COUNCILLOR WILSON.

OFFICIALS

OF THE

Public Health Department.

*Medical Officer of Health, Medical Superintendent of
the Corporation Hospitals, and Medical Adviser to
the Education Committee :*

J. G. GORNALL,
M.A., M.B., B.C., D.P.H. Cantab, M.R.C.S., L.R.C.P.

Assistant and Deputy Medical Officer of Health :

PRUDENCE E. GAFFIKIN, L.R.C.P. & S. EDIN.

Public Analyst :

F. G. RUDDOCK, F.I.C.

*Chief Inspector of Nuisances and Inspector under
the Food and Drugs Act :*

* WALTER T. FLOOD.

Assistant Sanitary Inspectors :

MEN.

* JOHN TAYLOR.

* JOHN STEVENS.

* JAMES SNAILHAM

WOMEN.

† A. J. HOYLE.

* F. A. HUGHES.

Clerks : JOHN PERCIVAL. ARTHUR ISHERWOOD.

House Disinfectors : JAMES PRITCHARD, JOHN MURPHY.

Hospitals :

Matron : MISS E. LEES.

Removal Officer, Lodgekeeper and Disinfectors : ALBERT E. HANDS.

Caretaker (at Sankey Sanatorium) : JAMES THOMASON.

* Holds the Certificate of the Sanitary Institute.

† Holds the Sanitary Inspector's Certificate of University College
Liverpool, and Certificate of Central Midwives Board.

CONTENTS.

	PAGE.
List of Committee and Officials	2-3
SECTION I.—Vital Statistics, Summary of	9
Deaths in Public Institutions	12
Ages of Mortality	14
Uncertified Deaths... ..	15
Ward Rates	17
Local Government Board Tables	22
Memoranda about Warrington	27
SECTION II.—Smallpox	31
Scarlet Fever	33
Phthisis	35
Bacteriologist's Reports	38
Annual Report of Hospitals	41
SECTION III.—School Hygiene	45
Report of the Medical Adviser to the Education Committee	48
SECTION IV.—General Sanitary Administration	59
SECTION V.—Action taken with regard to Factories and Workshops... ..	66
SECTION VI.—Work under the Midwives Act	69
REPORT OF PUBLIC ANALYST	71

PUBLIC HEALTH OFFICE,

BANK HOUSE,

WARRINGTON.

TO THE CHAIRMAN AND MEMBERS OF THE
HEALTH COMMITTEE.

SIRS,—

Owing to the sad death of Dr. Gornall, the late Medical Officer of Health for the County Borough of Warrington, early in the present year, the Annual Report on the Public Health and Sanitary Circumstances of the town for the year 1906 has necessarily been prepared by me, with the help of the staff of the Department. It is unavoidably less full and more impersonal than in previous years ; but, as we hope, a record of the faithful work done by the good man whose loss we so much deplore.

As in previous reports your attention is called to the requirements of the town from the point of view of Public Health, viz. :—

1. THE TOWN (GENERAL).—

- (a) A more regular system of paving streets and back passages.

(It is a matter of considerable satisfaction that the real extent of the evil is at length acknowledged. Much improvement is being brought about all over the town—but unfortunately it must take long to put the streets and back passages in proper condition. The back passages are often unaccountably neglected, though in some respects they are the most important.)

- (b) Perseverance in the closing and demolition of insanitary property.
- (c) Continued carefulness in the carrying out of the pail system.

(There is every reason to believe that the improved administration of the Department charged with this work goes on. The small number of cases of Enteric Fever is practical proof of the absence of any grave defects in the sanitary arrangements of the town.)

2. SCHOOLS.—

- (a) Accommodation.
- (b) Medical inspection of school children.

(With regard to schools: your attention was called in the report of last year to the need of adequate school accommodation and the regular medical inspection of the scholars. During the year steps towards the realisation of the need have been decisively taken by the building of two new schools and by the definite agreement about to be entered into by the Education Committee with the Health Authorities, which latter will, it is to be hoped, put the inspection of school children on a permanently satisfactory basis. The report issued by the Education Committee will be found on page 48 in the section devoted to school hygiene.)

3. HOSPITALS.—

- (a) Aikin Street.

(The new laundry machinery has been installed and was opened for use on the 18th May, 1906. This is of immense help in working the Institution.)

(b) Sankey : Completion of Hospital.

(The required wall is now built, but the construction of an Administrative Block, the provision of disinfecting apparatus and a destructor are needed to complete the Hospital.)

(In the absence of Smallpox it seems a pity that this Hospital should not be made to be of some service to the town, *e.g.*, used as a convalescent home or a small sanatorium for phthisis patients.)

(c) A cleansing and disinfecting station for "Contacts."

(Such a place, of which the need is sorely felt during a severe epidemic of Scarlet Fever or Smallpox, is apt to be thought an extravagance in times of quiescence of infectious disease, yet I have no doubt that we are likely again to experience the want of it.)

4. THE PUBLIC HEALTH OFFICE.—

The provision of adequate premises and office arrangements.

(To secure the proper working of the Public Health Department there is no more crying need than this, which must, I fear, await more favourable times for its fulfilment).

Apart therefore from the carrying out of the regular duties which devolve upon the Medical Officer of Health and the other officials of the Department, the needs to which attention has been called are being gradually supplied. It is true that there are many other things requiring remedy, but those above noted are among the most urgent. To them might be added as a matter of vital importance for the well-being of the community—the increasing prevalence of the use of artificial preservatives in articles of food. The Report of the Public Analyst, which is bound with this one, bears ample testimony to this point; but unfortunately, as yet, it has not been possible to

induce a very serious view of the subject to be taken by those best able to put a stop to the practice in Warrington. Only continued persistence in following up this matter of the use of chemicals as food preservatives is likely to influence public opinion.

Various subjects have received special attention in this report. Among them is to be noted that of Infantile Mortality, with regard to which a special table is included (Table V., page 25), and to phthisis and its ravages in Warrington several pages have been devoted. The administration of the Midwives Act has been much to the fore during 1906, and details of the work are given on page 69.

In presenting this, the last Annual Report of Dr. Gornall's work, I know I should not be doing as he would have wished if I did not specially call the attention of the Committee to the affectionate loyalty and conscientiousness with which the whole staff of the Department has worked during a time of exceptional trial.

I have the honour to be, Sirs,

Faithfully yours,

PRUDENCE E. GAFFIKIN.

SECTION I.

Vital Statistics.

SUMMARY.

Population (estimated at the middle of 1906)...	70,364
Population at Census, 1901	64,242
Population under 10 years of age at Census of 1901	16,889
Area of Borough (acres)	3,115
Density of population (<i>i.e.</i> number of persons per acre)	22·5
Number of houses in occupation (middle of year)	13,456
Number of houses not in occupation do. ...	455
Number of houses built during the year ...	279
Number of persons per house	5·2
Births : Males, 1,145 ; Females, 1,103 ...	2,248
Annual rate of births per 1,000 living ...	31·9
Deaths (670 Males, 603 Females)	1273
Annual Death-rate per 1,000 living (corrected)	18·0
Excess of registered Births over Deaths ...	975
Marriages	650
Annual rate of Marriages per 1,000 living ...	9·2
Death-rate from seven chief epidemic diseases per 1,000 living	3·1
Phthisis Death-rate per 1,000 living ...	1·57
Death-rate per 1,000 from other forms of Tuberculosis	·682
Respiratory Death-rate per 1,000 living ...	3·15
Infantile Mortality (<i>i.e.</i> death-rate of children under one year per 1,000 births) ...	157
Rateable value of Property 1906 ...	£257,967

The following Table is taken from the last returns of the Registrar-General, and I have added thereto the corresponding figures for Warrington, itself one of the 76 great towns:—

ENGLAND AND WALES, 1906.

Annual Birth-rates and Death-rates from the Seven Chief Epidemic Diseases.

	Annual Rates per 1,000 Living.			Infant Mortality Annual Death- rate of Infants under 1 Year per 1,000 Births.
	Births.	Deaths from all causes.	Deaths from Seven Chief Epidemic Diseases.	
England and Wales	27·0	15·4	1·73	133
76 great towns	27·9	15·9	2·24	145
142 smaller towns	26·5	14·5	1·71	138
England and Wales less the 218 towns	26·3	15·1	1·18	116
Warrington	31·9	18·0	3·1	157

POPULATION.—This I estimate at 70,364 at the middle of 1906, a figure calculated on the assumption that the same rate of increase has gone on since the census of 1901. The amount of building which continues seems to indicate a continuation of the previous growth of the town. In estimating the Ward populations, which will be found in the Table on page 17, the number of occupied houses has been used as a basis, it being taken for granted that the same ratio of persons per houses exists now as in 1901. It should be observed that the Registrar-General in estimating the vital rates for Warrington (and he now includes the town among those of which he publishes the figures weekly), bases his calculations upon a somewhat lower population, viz., that obtained by adding for each year since the Census of 1901, a tenth of the total increase during the previous decennium. By so doing his rates work out higher, as the following will show:—

	Birth-rate per 1,000	Death-rate per 1,000
On Registrar-General's Population	32·5	18·3
On Population on my estimate ...	31·9	18·0

RETURN SHOWING THE NUMBER OF DWELLING-HOUSES AND LOCK-UP SHOPS OCCUPIED AND UNOCCUPIED ON JULY, 15th, 1906 :—

Ward.	OCCUPIED.		UNOCCUPIED.	
	Houses.	Lock-ups.	Houses.	Lock-ups.
Town Hall ...	1,000	147	25	8
Whitecross ...	1,685	12	18	—
Bewsey ...	979	11	36	—
*Orford ...	1,577	15	61	—
St. John's ...	2,100	30	50	2
Fairfield ...	1,674	16	71	5
Howley ...	1,289	82	43	2
St. Austin's ...	1,184	92	77	5
Latchford ...	1,968	29	74	0
	<hr/>	<hr/>	<hr/>	<hr/>
	13,456	434	455	22
	<hr/>	<hr/>	<hr/>	<hr/>

* Including Barracks

LIST SHOWING THE NUMBER OF NEW DWELLING-HOUSES PASSED FOR OCCUPATION IN EACH WARD OF THE TOWN FOR THE YEAR 1906 :—

Orford Ward ...	94 houses.
Latchford Ward ...	63 „
Whitecross Ward ...	61 „
Fairfield Ward ...	48 „
Bewsey Ward ...	8 „
Town Hall Ward ...	5 „
	<hr/>
	279 houses.
	<hr/>

MARRIAGES.—The Superintendent-Registrar has furnished the following figures for the year 1906 :—

By the Church of England ...	413
By the Roman Catholic Church ...	77
At Nonconformist Places of Worship...	55
At the Register Office ...	105
	<hr/>
Total ...	650

This gives a marriage-rate per 1,000 of 9·2, which is higher than last year. There were 129 more marriages in 1906 than in 1905.

BIRTHS.—There were 2,248 births (males, 1,145; females, 1,103), being 33 less than in the previous year. The birth-rate is 31·9 as against 32·9 for 1905. The average of the ten years, 1896 to 1905, is 35·9 per 1,000, and it will be seen from Table 1 on page 22 that the years 1904-5 and 6 show considerable deviation from the standard of recent years. It is to be noted that the general birth-rate for Enland and Wales still continues to diminish, being 27·0, as against 27·2 in 1905. This declining birth-rate has continued during the past year to be a subject of great discussion in reviews and newspapers. It is well that at length public attention has been directed to this subject, not only by persons interested in public health, but by statesmen and men of repute in all walks of life. In this connection a few words spoken by Mr. John Burns, President of the Local Government Board, at the first national Conference on Infantile Mortality, held in London last June, may be quoted with advantage :—

“We notice that during the last fifteen years the general birth-rate, which must not be ignored in the consideration of infant mortality and its causes, has dropped from 34 to 28 per 1,000. I am glad to say, and sanitarians have every reason to congratulate themselves upon the fact, that, whilst the birth-rate has dropped from 34 to 28 per 1,000, the general death-rate has dropped from 22 to 16 per 1,000. . . . One word more with regard to this matter. Publicists as we are, we cannot help being more or less concerned—especially as we are advised by such a kindly, practical, and sympathetic corps of medical officers of health and statisticians, including the Registrar-General, whom I am glad to see here this morning—at the condition of married women at work, because we cannot help recognising under medical advice and guidance what the the pre-natal conditions of children are. I believe at the bottom of infant mortality, high or low, is good or bad motherhood. Give us good motherhood and good pre-natal conditions, and I have no despair for the future of this or any other country. I believe what the pre-natal condition of the mother is, so her offspring will be.”

DEATHS.—1,303 deaths were registered as occurring in the Borough during 1906. Of these, 202 occurred in public institutions, as follows :—

In the Infirmary	...	...	...	58
In the Workhouse	...	...	...	134
In the Fever Hospital	...	...	...	10
				<hr/>
Total	...	...	...	202

Forty of these deaths were of persons belonging to other districts, viz.:—

In the Infirmary	...	...	...	12
In the Workhouse	...	...	...	27
In the Fever Hospital	...	...	...	1

Information of these has been forwarded to the Medical Officers of Health of their respective localities—while 10 have been reported to us as having died in public institutions outside the district but as belonging to Warrington. These particular deaths were as follows:—

Winwick Asylum	...	...	...	...	3
Lancaster County Asylum	...	...	...	...	2
Rainhill Asylum	...	...	...	...	2
Whiston Union Workhouse	...	...	...	...	1
Royal Hospital, Salford	...	...	...	...	1
Hospital for Women, Liverpool	...	...	...	...	1
					—
Total				...	10

Twenty-six deaths occurring in the Workhouse were those of vagrants belonging, so far as is known, to no particular locality.

The crude death-rate for 1906 was therefore 18·5, but deducting 40 non-residents from, and adding 10 residents dying outside to the registered numbers, viz., 1303, we get 1273 the actual number to be credited to Warrington. The net death-rate on this calculation is 18·0. The death-rate for England and Wales as given by the Registrar-General is 15·4.

AGES OF MORTALITY.

The following table shows the numbers of deaths (distinguishing males and females) at different age periods:—

	Males.	Females.	Total.
Under 1 year—			
0—3 months	87	78	165
3—6 „	44	38	82
6—12 „	56	50	106
Totals under 1	187	166	353
Over 1 and under 2	60	64	124
„ 2 „ 3	19	24	43
„ 3 „ 4	2	9	11
„ 4 „ 5	8	10	18
Totals 1—5	89	107	196
Over 5 and under 10... ..	21	21	42
„ 10 „ 15... ..	8	18	26
„ 15 „ 25... ..	29	25	54
„ 25 „ 35... ..	36	25	61
„ 35 „ 45... ..	55	41	96
„ 45 „ 55... ..	72	48	120
„ 55 „ 65... ..	73	51	124
„ 65 „ 75... ..	59	66	125
„ 75 „ 85... ..	36	29	65
Over 85	5	6	11
Totals at ages over 5	394	330	724

(1) THE ZYMOTIC DEATH-RATE, or death-rate from seven chief epidemic diseases, that is to say, Smallpox, Measles, Scarlet Fever, Whooping Cough, Diphtheria, and Membranous Croup, Enteric Fever, and Diarrhœa has long been regarded as a test of the state of the public health. The above list includes most, though by no means all the common diseases which are spread by infection from person to person, and are preventable

if it be possible, as too often unfortunately it is not, to make use of the proper means. The death-rate from these diseases in 1906 was higher than in 1905, but below the two preceding years, as will be seen by comparing the following figures:—

1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
3.0	2.8	3.2	5.01	2.5	3.8	1.53	3.5	4.6	2.7	3.1

(2) UNCERTIFIED DEATHS.—Ninety-seven deaths or 7.6 per cent. of the total credited to Warrington during the year were not attended by a medical practitioner, or one being summoned was not in a position to give a certificate of the cause. In 51 instances an inquest was considered necessary by the Coroner. In 46 others the Registrar following the rules laid down for him has entered such cause of death as interrogation of the relatives of the deceased has helped to arrive at it. This is most unsatisfactory from every point of view, especially in cases of young infants, of whom such lamentable numbers perish every year through the neglect and practically, in some cases, the intention of their parents. The following tables illustrate the extent to which uncertified deaths occur in Warrington, though they can but partially indicate the grave objections there are to the system in vogue.

UNCERTIFIED DEATHS WITH REGARD TO WHICH NO INQUEST WAS HELD.

CAUSE OF DEATH AS GIVEN BY THE REGISTRAR.	All ages.	Under 1 year	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwards
Convulsions	18	16	1	...	...	1	..
Syncope	7	...	...	...	...	4	3
Phthisis	2	...	...	...	...	2	...
Heart Disease	3	...	...	...	1	2	...
Heart Failure	2	...	...	...	...	1	1
Heart Failure and Diarrhœa	1	...	1	...	...	...	..
Fatty Degeneration of Heart..	1	..	...	...	...	1	...
Cancer of Liver and Syncope.	1	...	...	...	...	1	...
Pneumonia	1	...	1	...	...	...	...
Premature Birth	7	7	...	...	...	...	...
Weakness	1	1	...	...	...	...	...
Senile Decay	2	...	...	...	...	...	2
Totals	46	24	3	...	1	12	6

LIST OF CASES IN WHICH AN INQUEST WAS HELD.

ACCIDENTS by scalds	...	...	...	...	...	3
burns	...	...	...	...	...	12
drowning	...	...	...	...	...	5
being run over by vehicles	...	...	...	...	...	4
jumping from train	...	...	...	...	...	1
falls	...	...	...	...	...	5
crushed between wagons	...	...	...	...	...	1
suffocated in bed	...	...	...	...	...	2
drinking a quantity of laudanum	...	...	...	...	...	1
stack of steel falling upon him	...	...	...	...	...	1
Total						35
Deaths from "Natural Causes"	...	...	...	...	...	6
,, Consumption of Bowels	...	...	...	...	...	1
Total						7
SUICIDES by drowning	...	...	...	...	...	1
hanging	...	...	...	...	...	4
cutting throat	...	...	...	...	...	2
poisoning	...	...	...	...	...	2
Total						9
Total	...	...	...	...	...	51

(3) VITAL STATISTICS OF THE WARDS.—The method pursued last year of estimating the populations of the Wards by reckoning to each occupied house the same number of inhabitants as at the census of 1901 has again been pursued, unsatisfactory though it be in some respects. It is remarkable how the character of these parts of the town is maintained as is shown by the rates which have been worked out. Contrast in the first place Whitecross and St. John's Wards :—

WHITECROSS. — Mostly of quite modern date and though some parts of it are of bad and insanitary construction, yet it is very open without close aggregations of dwellings. It has a population in regular employment and mostly getting good wages. It has the highest birth-rate, 37·5, and the lowest death-rate, 12·8. A low infantile death-rate, 110. It shares with Town Hall Ward in the lowest zymotic death-rate, 2·07 : and has a very low phthisis death-rate, 1·4.

ST. JOHN'S has about 1,700 more inhabitants than Whitecross Ward. It contains some very bad slums, and yards and alleys innumerable. Its population contains a very considerable proportion of labourers and persons having somewhat precarious means of livelihood. It has a birth-rate (34·6) almost as high as Whitecross; its death-rate (20·9) is nearly twice that of the other ward. Its infantile death-rate (214) is almost double, and its zymotic death-rate is more than twice that of Whitecross. The phthisis death-rate is also higher.

TABLE TO SHOW THE VITAL RATES FOR THE DIFFERENT WARDS OF THE TOWN.

WARD.	Estimat'd Popula- tion Middle of 1906.	Persons per house at Census 1901.	Birth Rate per 1,000 living.	Death Rate per 1,000 living.	Infantile Death Rate per 1,000 births.	Death Rate from the Seven Chief Epidemic Diseases	Phthisis Death Rate per 1,000 living.
TOWN HALL	4,995	5·0	25·2	17·4	134	2·0	2·7
WHITECROSS	9,176	5·5	37·5	12·8	110	2·07	1·4
BEWSEY	5,275	5·4	31·4	23·5	168	3·6	2·08
ORFORD	9,209	5·9	34·8	18·4	161	4·5	1·3
ST. JOHN'S	10,920	5·2	34·6	20·9	214	4·3	2·01
FAIRFIELD	8,154	4·9	33·1	14·8	126	2·6	1·3
HOWLEY	6,702	5·2	32·3	20·7	188	3·8	1·3
ST. AUSTIN'S	6,156	5·2	19·9	16·5	113	2·2	·9
LATCHFORD	9,777	5·0	30·7	16·0	159	2·2	·9
WHOLE BOROUGH	70,364	5·2	31·9	18·0	157	3·1	1·57

(4) RESPIRATORY DEATH-RATE.—The death-rate per 1,000 living from the diseases of the respiratory organs other than those of Tuberculous origin was 3·15, showing that these diseases were more prevalent than in the previous year, but about normal if you compare the following figures for the past years.

1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906
3·6	4·0	3·6	3·2	2·6	3·0	3·2	2·4	3·0	2·3	3·1

(5) DEATHS FROM TUBERCULOSIS—

- (1) There were from Tuberculosis of the Lungs or Phthisis 110 deaths giving a death-rate of 1.57. This is a considerable increase on the figures of previous years.
- (2) The deaths from other forms of Tuberculosis numbered 48, a death-rate of .682. Which is about the same as in the previous year.

(6) INFANTILE MORTALITY.—It must regretfully be recorded that the Infant Death-rate of Warrington is distressfully high, viz: 157 per 1,000 births, the greatest number of infant deaths occurring in St. John's Ward.

This is an increase of 10 per 1,000 on that of last year, but the summer of 1906 was exceptionally hot, and the weather is one of the chief determining causes of a high infantile death-rate, especially in relation to epidemic diarrhœa, *which it is very much to be wished was a notifiable disease*. During the last few years efforts have been made by this department to spread some knowledge of the right way to feed young children, but much more could be done if some more regular and definite way of obtaining information as to the occurrence of births was in vogue. Definite information as to all deaths of infants under one year of age is received, and visits paid with a view to finding out the cause of the death and giving advice, but this method rather suggests shutting the stable door after the steed is stolen, and it is impossible to visit the new born babies without regular information as to where births have occurred.

In 1906 100 infants under one year of age died from diarrhœa, 40 between the ages of one and five years, and 7 only over five years old. Of all causes of infantile death this disease is the one to be attacked by preventive measures; ignorance and want of scrupulous cleanliness on the part of the mother being a fruitful cause of this trouble.

If the mothers could be reached and tactfully advised soon after the birth of their children, and before any illness occurs, much suffering and child death might be averted.

In this connection attention might be called to the great number of still births in Warrington. See page 69. Possibly advice to expectant mothers might help to stem this evil, and here the liberty is taken of again quoting from Mr. John Burns.

“Now what comes in upon me at this moment, Mr. Chairman, is this: what are the reasons of this infantile mortality being

what it is? What are the causes? Wealth has increased, but the infant has not shared in it; physical comforts undoubtedly have enlarged, yet the weakest, the smallest, and the dearest to us all alone bear unduly the penalty and the burden of death. Now does progress—I mean material progress, not always the best criterion of a nation's advancement—does material progress hit the child too severely? If so, we are to find out the source from which the blows come. Or is it the mother, through causes we need not dilate upon, registering through her offspring a decline of race fecundity. Or is it due to nervous excitements and diversions that prevent both the number and the quality of the children that in more simple times we perhaps are able to produce? It may be, Mr. Chairman, that in equal parts the mother, society, and industry are mutually and jointly responsible. Whatever be the causes and chief causes, the child is not to blame. Well then, if the child is not to blame, society is, and mothers and husbands and industry are. I believe, and you do, too, that two out of four infantile deaths are preventable. You have met to say that that is so. Your inclination is to say that it shall cease, and this conference has determined to arrange for that happy consummation and that beneficent result. Now, in going through this subject one is struck with one or two cheering facts. First, illegitimate infants, amongst whom there is an awful mortality, are declining fast, and are not so numerous proportionately or in the aggregate as they were. This is good in itself, but, as affecting the general infantile death-rate, an examination of the illegitimate birth-rate, and above all the illegitimate death-rate—which is barely less than twice that of the legitimate—is beginning to reveal certain things that the publicist, the moralist, and the doctor must deal with. I am afraid that too often the illegitimate child bears the burden of the parents' delinquency, and often I am afraid the child suffers from the harsh verdict that society puts upon the too often unguarded, isolated, and unprotected mother. If that be true, we have got to temper the wind to the shorn lamb, and although the illegitimate death-rate is double that of the legitimate, we must see that when woman sins the sin is not visited upon her offspring to the permanent damage of the child, and incidentally to the permanent discredit of the community. There is another thing that is revealed in looking at this subject, and it is that infantile deaths due to certain vicious, sensuous, and immoral causes are also declining. Over the whole field of infantile life, except to the extent to which it is circumscribed by infantile death, in my judgment there is no reason for despair or despondency."

Also the following paragraphs from the Presidential address to the British Gynæcological Society of Professor Taylor, Professor of the Diseases of Women in Birmingham University.

“On the other hand there is every reason to fear that debased ideal of married life which is secretly and insiduously working for the ruin of the nation's power and for the destruction of its hope.

“Artificial prevention is an evil and disgrace—the immorality of it, the degredation of succeeding generations by it, their domination or subjection by strangers who are stronger because they have never given way to it, the curses that must assuredly follow the parents of decadence who started it—all of this needs to be brought home to the minds of those who have ignorantly or thoughtlessly accepted it. For it is undoubtedly to this that we have to attribute not only the diminishing birth-rate, but the diminishing value of our population.

“No truer words were ever said than those by Ruskin, ‘The maximum of life can only be reached by the maximum of virtue.’ Do they not carry with them another truth which has now become almost a demonstrable fact, that the prevention of life is always accompanied by moral deterioration.

“And this evil harvest for ourselves and for our children is of our own sowing. Some looking back on past history and bygone civilizations have imagined that the rise and fall of Empire follows some unalterable law, and that nations like individuals must necessarily suffer from senility and decay.

“But it is not so. National decay or degeneration is by no means the inevitable consequence of age. Our modern ally Japan is an evidence of this. After a long and chequered history, quite as long or longer than our own, she has emerged in all the activity and strength of a second youth.

“And it is interesting to note that this new-found power is directly associated in the minds of the Japanese with the knowledge of their own racial strength and power of increase: indeed it is this which gives them—youth.

“This is well shown by some recent remarks of one of their more prominent men. He writes, ‘Japan is in no danger of race suicide. . . . The mothers are not shirking maternity as in other lands, and the result is that we can spare half-a-million of men a year for an indefinite number of years and not miss them.’”

Three hundred and fifty-three deaths occurred under one year of age, or 157 per 1,000 born during the year. Of these deaths 24 were of illegitimate children. Comparing the legitimate and illegitimate children—of the legitimate 329 died to a total of 2,168 legitimate born, or 151 per 1,000—of the illegitimate 24

to total born of 80, or 300 per 1,000, thus shewing the enormous difference to the chance of life which is made by such circumstances of coming into the world.

(7) DEATHS FROM CANCER.—The following are particulars of the situation of the cancerous growths from which 60 persons died during the year 1906.

MALES.				FEMALES.			
Cancer--Tongue	...	...	3	Cancer--Breast	...	...	7
Rectum	...	...	3	Stomach	...	...	11
Stomach	...	...	6	Omentum	...	...	1
Liver ...	...	...	1	Liver ...	...	...	5
Æsophagus	...		1	Mammæ	...	...	1
Pylorus	...	...	1	Uterus	...	...	2
Sarcoma--Glands of Neck			1	Rectum	...	...	2
Jaw	...	...	1	Pylorus	...	...	2
Growth in				Bowels	...	...	1
Bladder	...		2	Lympho -- Sarcoma--Neck			1
Lympho -- Sarcoma--Neck			2	Epithelioma of Lip	...	...	2
Tumour of Mediastinum	...		1	Abdominal Tumour	...	...	1
Cancrum Oris	...	...	1	Peritoneal Tumour	...	...	1
<hr/>				<hr/>			
23				37			
Total 60.							

STATISTICAL TABLES
OF
BIRTHS, DEATHS, AND DISEASES,
FOR THE
COUNTY BOROUGH OF WARRINGTON
(AS SUPPLIED TO THE LOCAL GOVERNMENT BOARD).

TABLE I.
FOR WHOLE DISTRICT.
CORRECTED IN ACCORDANCE WITH THE CENSUS OF 1901.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		Total Deaths Registered in the District.				Total Deaths in Public In- stitutions in the District.	Deaths of Non-residents registered in Public Insti- tutions in the District.	Deaths of Residents registered in Public Insti- tutions beyond the District.	Nett Deaths at all Ages be- longing to the District.	
				Under One Year of age.		At all Ages.					No.	Rate*
		No.	Rate.*	No.	Rate per 1000 Births regst.	No.	Rate.*					
1	2	3	4	5	6	7	8	9	10	11	12	13
1896	57,219	2,143	37·6	350	163	1,137	19·9	122	32	—	1,105	19·3
+1897	60,877	2,269	37·2	398	175	1,244	20·4	145	37	2	1,209	19·1
1898	61,465	2,358	38·3	399	169	1,156	18·8	137	35	1	1,122	18·2
1899	62,761	2,309	36·7	449	194	1,313	21·1	145	30	3	1,286	20·4
1900	63,560	2,388	37·5	389	162	1,289	20·3	178	42	15	1,265	19·8
1901	64,465	2,276	35·2	404	177	1,273	19·7	147	36	6	1,243	19·2
1902	65,842	2,376	36·1	350	149	1,108	16·8	154	21	8	1,095	16·6
1903	67,153	2,395	35·6	369	154	1,261	18·7	168	33	10	1,238	18·4
1904	68,490	2,246	32·7	384	171	1,361	19·8	174	39	12	1,335	19·4
1905	69,153	2,281	32·9	336	147	1,192	17·3	167	36	13	1,169	16·9
Aver- ages for years 1896-05.	64,098	2,304	35·9	382	166	1,233	19·2	153	34	7	1,206	18·7
1906	70,364	2,248	31·9	353	157	1,303	18·5	202	40	10	1,273	18·0

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term “Non-residents” is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term “Residents” is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The “Public Institutions” to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made is given on p. 13.

Area of District in acres (exclusive of area covered by water), 3,115.

Total population at all ages.....	64,242	} At Census of 1901.
Number of inhabited houses	12,272	
Average number of persons per house....	5·2	

† By the Warrington Corporation Act, which came into force in November, 1896, an addition of over two thousand was made to the population of the Borough.

TABLE II.

Vital Statistics of separate Localities in 1906 and previous years.

Name of District—COUNTY BOROUGH OF WARRINGTON.

NAMES OF LOCALITIES.	1.—WHOLE BOROUGH.				2.—TOWN HALL WARD.				3.—WHITECROSS WARD.				4.—BEWSEY WARD.				5.—ORFORD WARD.				6.—ST. JOHN'S WARD.				7.—FAIRFIELD WARD.				8.—HOWLEY WARD.				9.—ST. AUSTIN'S WARD.				10.—LATCHFORD WARD.			
	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
YEAR.	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>	<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
1896	57219	2143	1105	350	5772		124		6782		156		5257		103		6588		130		9568		198		6210		96		6549		156		4081		58		6603		84	
*1897	60877	2269	1209	398	5676		95		6928		122		5205		119		6840		171		9721		232		6469		101		6570		172		6082		91		7411		106	
1898	61465	2358	1122	399	5606		90		7074		98		5153		90		7092		143		9874		217		6713		102		6591		171		6106		85		7569		126	
1899	62761	2309	1286	449	5524		103		7220		126		5101		118		7344		165		10027		267		6959		115		6612		144		6180		115		7727		133	
1900	63560	2388	1265	389	5448		100		7336		142		5049		113		7596		116		10180		221		7201		110		6633		172		6254		93		7885		145	
1901	64465	2276	1243	404	5368		107	25	7516		101	27	4995		94	29	7849		152	45	10366		301	121	7447		120	50	6652		149	44	6324		85	24	8040		126	46
1902	65842	2376	1095	350	5360	128	83	22	7700	328	118	29	4010	170	89	29	7915	290	131	48	10633	474	215	86	7708	272	118	42	6729	254	145	44	6372	150	73	24	8310	280	92	20
1903	67153	2395	1238	369	5155	139	112	18	8503	342	122	43	5011	187	110	36	8030	251	138	42	10910	527	259	88	7864	275	137	44	6838	254	119	45	6427	143	96	20	8753	277	123	33
1904	68490	2246	1335	384	5075	138	93	15	8827	341	147	43	5157	164	107	37	8777	292	153	48	10857	425	252	10	7844	228	128	34	6749	227	183	49	6390	148	84	18	9065	283	164	38
1905	69153	2281	1169	336	5010	142	84	19	9097	386	114	47	5254	139	113	30	9150	287	125	33	10826	428	272	91	8001	243	117	39	6666	221	120	30	6208	146	86	13	9375	289	117	29
Averages of Years 1896 to 1905.	64098	2304	1206	332	5369		99		7698		124		5019		105		7718		142		10296		243		7240		114		6658		153		6037		87		8073		121	
1906	70364	2248	1273†	353	4995	126	87	17	9176	345	118	38	5275	165	124	28	9209	323	170	52	10920	378	229	81	8154	270	121	34	6702	217	139	41	6156	123	102	14	9777	301	157	48

NOTES.—(a) The separate localities adopted for this table should be areas of which the populations are obtainable from the census returns, such as wards, parishes or groups of parishes, or registration sub-districts. Block 1 may, if desired, be used for the whole district; and blocks 2, 3, &c., for the several localities. In small districts without recognised divisions of known population this Table need not be filled up.

(b) Deaths of residents occurring in public institutions beyond the district are to be included in sub-columns *c* of this table, and those of non-residents registered in public institutions in the district excluded. (See note on Table I. as to meaning of terms "resident" and "non-resident.")

(c) Deaths of residents occurring in public institutions, whether within or without the district, are to be allotted to the respective localities according to the addresses of the deceased.

(d) Care should be taken that the gross totals of the several columns in this Table respectively equal the corresponding totals for the whole districts in Tables I. and IV.; thus, the totals of sub-columns *a*, *b*, and *c* should agree with the figures for the year in the columns 2, 3, and 12, respectively, of Table I.; the gross total of the sub-columns *c* should agree with the total of column 2 in Table IV., and the gross total of sub-columns *d* with the total of column 3 in Table IV.

* In 1897 the Borough was extended. † Of these 26 could not be distributed.

COUNTY BOROUGH OF WARRINGTON.

TABLE III.—Cases of Infectious Disease notified during the Year 1906.

NOTIFIABLE DISEASE.	Cases notified in Whole District.						Total Cases notified in each Locality.								No. of Cases removed to Hospital from each Locality.									
	At all Ages	At Ages †—Years.					Town Hall Ward.	Whitecross Ward (H) (W)	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Town Hall Ward.	Whitecross Ward (H) (W)	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.																			65 and upwards.
Smallpox	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Cholera	24	1	8	10	3	..	2	3	2	3	3	3	1	4	6	..	1	..	1	2	1	..	2	..
Diphtheria	4	1	3	9	10	..	..	1	1	1	5	5	..	..	8	..	..	..	..	..	..	..	..	..
Membranous Croup ..	68	1	6	39	3	..	4	8	6	14	8	8	2	6	15	..	5	4	6	7	7	2	..	14
Erysipelas	64	2	19	39	1	..	6	7	9	7	8	8	2	4	15	..	5	4	6	7	7	2	..	14
Scarlet Fever .....	..	..	..	..	..	..	5	13	3	10	1	1	2	3	3	..	10	3	2	8	1	..	2	3
Typhus Fever	43	1	2	10	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Relapsing Fever .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Continued Fever	8	..	..	..	5	..	1	..	1	2	1	1	..	2	1	..	..	..	..	..	..	..	..	..
Puerperal Fever .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague	80	..	..	10	23	..	7	8	5	7	21	9	7	7	9	..	..	..	2	5	..	..	1	..
Phthisis .....	..	..	..	..	47	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	292	6	38	78	54	108	25	40	22	33	58	27	17	27	43	7	16	7	11	22	9	2	8	18

NOTES.—The localities adopted for this Table should be the same as those in Tables II. and IV.

State in space below the name of the Isolation Hospital, if any, to which residents in the district, suffering from infectious disease, are usually sent. Mark (H) the locality in which it is situated, or if not within the district, state where it is situated, and in what district. The name of the authority by whom the hospital is provided should also be given. Mark (W) the locality in which a workhouse is situated.

† These age columns for notifications should be filled up in all cases where the Medical Officer of Health, by inquiry or otherwise, has obtained the necessary information.

*Isolation Hospital, Warrington Borough Hospital, Aikin Street (Whitecross Ward).
Small-pox Hospital at Sankey (outside the Borough).*

TABLE IV.—COUNTY BOROUGH OF WARRINGTON.

CAUSES OF, AND AGES AT, DEATH DURING YEAR 1906.

CAUSES OF DEATH.	DEATHS IN OR BELONGING TO WHOLE DISTRICT AT SUBJOINED AGES.							DEATHS IN OR BELONGING TO LOCALITIES (AT ALL AGES).										Total Deaths in Public Institutions
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Town Hall Ward.	Whitecross Ward.	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Undistribut'd Deaths.	
Smallpox .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles.....	33	5	24	4	..	..	..	1	3	6	10	6	2	2	3	..	..	1
Scarlet Fever	2	..	1	1	..	..	..	..	1	..	..	..	1	..	..	..	..	2
Whooping Cough	33	14	19	..	..	..	..	2	3	..	8	10	1	7	1	1	..	..
Diphtheria & Mem- branous Croup..	9	..	4	5	..	..	..	..	..	..	1	1	1	1	2	3	..	2
Croup .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
FEVER—																		
Typhus .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric	4	..	..	1	1	2	..	..	2	..	..	1	..	1	..	..	..	5
Other continued .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Influenza	16	1	1	1	2	9	2	2	2	1	4	3	..	..	1	3	..	..
Cholera .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhœa	147	100	40	..	2	5	..	8	10	15	25	28	18	17	8	18	..	5
Enteritis	7	..	1	..	..	4	2	..	..	1	..	2	..	2	2	..	..	1
Puerperal Fever ..	2	..	..	..	1	1	..	..	..	1	..	..	..	..	1	..	..	1
Erysipelas.....	7	..	1	1	..	3	2	..	1	..	1	1	1	..	2	1	..	..
Other Septic Diseases	2	..	1	..	..	1	..	..	..	..	..	..	..	..	1	..	1	1
Phthisis (Pulmon- ary Tuberculosis)	110	..	1	12	17	79	1	13	13	13	12	23	9	8	7	10	2	16
Other Tubercular Diseases	48	14	14	10	4	5	1	3	4	6	10	4	8	4	2	7	..	6
Cancer, Malignant Disease	60	..	..	..	1	40	19	5	5	4	8	10	4	7	7	8	2	12
Bronchitis.....	104	30	15	..	..	36	23	11	14	8	10	18	11	13	5	11	3	17
Pneumonia	110	29	33	7	5	30	6	6	7	12	14	25	6	16	4	16	4	16
Pleurisy.....	4	..	1	1	..	2	..	..	..	1	1	1	..	1	..	..	..	..
Other Diseases of Respiratory Organs	7	..	1	3	1	2	..	..	1	1	1	..	..	..	2	2	..	..
Alcoholism	13	..	..	..	..	13	..	1	1	2	..	2	1	3	3	..	..	1
Cirrhosis of Liver } Venereal Diseases	6	3	..	..	..	3	..	..	..	..	2	2	..	..	2	..	..	1
Premature Birth ..	43	43	..	..	..	..	..	1	6	1	9	4	5	8	..	9	..	..
Diseases and Accidents of Parturition	6	..	..	..	2	4	..	..	..	..	..	2	1	1	1	1	..	..
Heart Diseases....	30	..	1	3	7	14	5	1	3	2	1	8	3	5	2	4	1	3
Accidents	35	2	8	5	3	13	4	1	3	8	1	6	1	3	4	8	..	29
Suicides	9	..	..	..	..	8	1	2	..	..	2	..	..	3	..	2	..	1
All other causes ..	426	112	30	14	9	125	136	30	39	42	50	72	47	38	42	53	13	82
All causes.....	1273	353	196	68	55	399	202	87	118	124	170	229	120	140	102	157	26	202

TABLE V.—COUNTY BOROUGH OF WARRINGTON.

INFANTILE MORTALITY DURING THE YEAR 1906.

Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under 1 Year.
All Causes:																	
Certified	42	10	14	10	76	39	32	33	22	22	13	19	12	20	14	24	326
Uncertified	13	..	2	..	15	3	1	2	1	2	1	1	1	..	..	..	27
Common Infectious Diseases :																	
Smallpox .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chickenpox .. .. .	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Measles .. .. .	..	..	..	..	..	..	..	1	..	1	..	1	..	..	1	1	5
Scarlet Fever .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria : Croup .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough .. .. .	..	..	..	..	..	1	2	1	1	..	1	3	1	2	..	2	14
Diarrhœal Diseases :																	
Diarrhœa (all forms) .. .. .	..	1	3	1	5	13	8	16	10	9	6	6	6	10	4	7	100
Enteritis (not Tuberculous) .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastritis. Gastro-intestinal Catarrh .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wasting Diseases :																	
Premature Birth	27	4	5	3	39	3	..	1	..	..	..	..	..	..	..	..	43
Congenital Defects	4	2	1	..	7	2	..	..	..	..	..	..	..	..	..	..	9
Injury at Birth	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Want of Breast Milk .. .. .	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2
Atrophy, Debility, Marasmus	5	1	2	2	10	6	6	4	3	4	1	..	..	2	2	1	39
Tuberculous Diseases :																	
Tuberculous Meningitis .. .. .	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2
Tuberculous Peritonitis : .. .. .	..	..	..	..	..	..	1	2	..	1	1	..	1	1	1	2	10
Tabes Mesenterica .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Tuberculous Diseases .. .. .	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	2
Erysipelas .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syphilis .. .. .	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	3
Rickets .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Meningitis (not Tuberculous) .. .. .	..	..	..	..	..	3	2	1	2	..	1	2	1	1	..	3	16
Convulsions	4	..	2	..	6	1	3	..	..	..	..	..	..	..	..	..	10
Bronchitis .. .. .	..	1	1	3	5	5	3	2	3	1	1	3	1	1	2	3	30
Laryngitis .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia .. .. .	..	..	..	..	..	2	4	3	2	4	2	1	2	3	4	2	29
Suffocation, overlying	1	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	2
Other Causes	13	1	1	1	16	4	2	2	2	3	1	3	..	..	..	2	35
	55	10	16	10	91	42	33	35	23	24	14	20	13	20	14	24	353

DISTRICT OF WARRINGTON.

Population, estimated to middle of 1906, 70,364.

Births in the year { Legitimate 2,168
 { Illegitimate 80
 Deaths from all Causes at all ages .. 1,273

Deaths in the year { Legitimate 329
 { Illegitimate 24

MEMORANDA AS TO CIRCUMSTANCES LIKELY TO INFLUENCE THE PUBLIC HEALTH OF WARRINGTON.

Situation.—On the northern and southern banks of River Mersey, about midway between Manchester and Liverpool: the southern municipal boundary, the Ship Canal, also constitutes the dividing line between Lancashire and Cheshire at this point. Also on the main road between the Midlands and parts of Lancashire (including coal and iron districts). It is consequently continually passed through by tramps and persons in search of employment. It is generally low lying and in a depression formed by valley of Mersey, most of town being to the north of that river. The parts of it nearest to the river, and almost the whole of the Latchford Ward on the south are on alluvial land (part of the old river bed). The site of the rest of the town, which rises towards the centre, is on a formation of the upper levels of the New Red Sandstone, covered to varying depths with a glacial deposit of boulder clay, and in two spots, one in Sankey Street and the other in Bewsey Street, there also exist gravel beds.

Streets and Buildings.—In the older and central portion, comprising chiefly Town Hall, Howley, and St. John's Wards (*vide* Ward Rates), are narrow streets and back courts and alleys containing most insanitary dwellings, now gradually disappearing partly through street widening, partly through the work of the Health Committee. Shops and offices are largely supplanting residences in the middle of the town. Around this is an area of streets of small houses called into existence by the industrial development of last 50 years: 40 per cent. of the houses in the borough contain four rooms or less. Much of the property of twenty years ago or more has passed into a very bad state through the absence of damp-course, &c.

The paving of new streets is often delayed for a very long time, while in back passages in this respect, the condition of things is even worse, but it is now to be hoped that a decisive improvement will be made. The matter is of great importance for the future healthfulness of the borough, as unpaved streets form excellent breeding ground for germs of every description.

Suburbs can hardly be said to exist within the confines of the Borough, though in two directions, at any rate, east and south of the centre, the town acquires a more suburban character. Contiguous to these parts, but outside the borough, are two populous and growing districts, Stockton Heath and Padgate, the one in the Runcorn Rural District, the other in the Warrington Rural District. Under the latter Sanitary Authority is also an increasing population just outside the western boundary at Sankey Bridges. As none of these places have in sanitary administration been brought up to the level of the Borough, especially as regards the isolation of infectious diseases, and a great number of the inhabitants have their employment, and many of the children come to school inside the town, there is no doubt that they are a continual danger to Warrington, and increase the cost of carrying on the work of the Health Department.

Communication by railway is particularly good, rendering easy access to neighbouring towns, and, indeed, to all parts of the country. Electric tramways have now been running five years, and there are already signs that they will lead to new suburban districts, though it remains to be seen how they will help us in the housing difficulty by reducing the overcrowding in the worst parts of the town.

Population.—About 70 per cent. were born in Lancashire, about eight per cent. in Cheshire; of the rest Staffordshire and Ireland are the main sources of supply. There is no doubt, however, that a considerable proportion of the native born are of Irish and Staffordshire extraction, for much immigration

took place when the iron industry began. Scotch and Welsh are comparatively few, as also are aliens (141 at census of 1901). Jews have of late years become sufficiently numerous to have a synagogue constituted.

Age and Sex Distribution of Population.—At the census there were shewn to be 32,323 males, and 31,919 females, the excess of males being mainly owing to industrial conditions. 16,889 persons were under ten years of age (viz., 8,458 males and 8,431 females), *i.e.* 26 per cent. of the population, a proportion that is not likely to go down if our high birth-rate continues.

Occupations.—An almost entirely industrial community: the staple trades being the manufacture of iron in many various branches, and tanning, but a remarkable number of other businesses exist, *e.g.*, soap-making, fustian-cutting, glass-making, and file-cutting; there is only one cotton mill. The result of this variety of trades is an almost continuous prosperity; places where there is only one main means of livelihood are much more liable to periods of distress.

The Smoke Nuisance is, as might be expected, a serious one, and there has hitherto been a practically complete indifference of the people both to its ugliness and to its injuriousness to life, both animal and vegetable. But a serious obstacle to dealing with it has been the exemption from interference which iron manufacturers enjoy, if they can show the impossibility of carrying on such processes as puddling without the production of black smoke. One firm of iron manufacturers in Warrington has indeed put in an installation for Mond gas, but it remains to be seen how far that will meet the difficulty. There is not, however, and cannot be, the same excuse with regard to furnaces used solely for producing steam, and I doubt not that if the eventual advantages in economy could be demonstrated to many owners of factories they would put in a smoke preventing apparatus such as at the Corporation Electricity Works and in others is found to be so conspicuous a success; it is the initial cost which deters many of them. Meanwhile, it is to be hoped that the efforts of the lately instituted "Beautiful Warrington Society," which has set out to improve the conditions of living in Warrington, and includes in its programme the diminution of black smoke will be successful. The hope is, that by interesting the stokers in an attempt to promote the growth of flowers in the town, they may be induced to take more care to make unnecessary and wasteful smoke. Such efforts are worthy of all encouragement from the Corporation, which I should much like to see really keen on purifying the atmosphere of the town, and not merely content to see in much smoke a proof of good trade and increasing prosperity.

Water Supply.—(1) For drinking purposes from deep wells in the New Red Sandstone at Delph, near Winwick, to the north (four new wells recently constructed): of considerable hardness but of a high degree of organic purity as judged by the analyses of past years.

(2) For trade purposes, from a reservoir at Appleton, on the south of the town, fed by brooks bringing water from farm lands. Formerly this was used for drinking also, but was condemned in 1870 by Dr. Ballard in a report on the prevalence of Enteric Fever in Warrington.

There are very few wells now in use for providing drinking water within the Borough area.

Disposal of Refuse and Drainage.—According to the latest return there are now

- (1) Water Closets, 694, approximately.
- (2) Pails Closets, 14,221.
- (3) Privy Closets, 6 (4 only cleansed by Corporation).

The vast majority of newly-erected houses are supplied with pail closets. This is a system which has great drawbacks, but which it is possible with great energy and care to carry out with a fair success in the avoidance of nuisance. However great the objections to this method of getting rid of excreta may be, it is evident that there are in our sewerage system notable deficiencies for coping with the ideal method of removal, viz., that of water carriage. Moreover, the town, from its lying so low, would be a difficult one to sewer on such a scale as would be required were water closets universally adopted. And then again would arise the great question of treating the sewage, so as no longer to contaminate the Mersey, a question that looms on the horizon of many of the Sanitary Authorities in this part of the country. The pails are collected by night, and taken to the intercepting depots, whence the contents are carried by pneumatic pressure through underground pipes to Longford. There the excreta are dried in vacuo and converted into poudrette, for which there is a good sale.

I am indebted to the courtesy of Mr. T. Longdin, the Borough Surveyor, for the following account of the drainage of Warrington:

"In the year 1849 the then Robert Rawlinson (who afterwards received the title of Sir R. Rawlinson, C.B., and became Chief Engineering Inspector of the Local Government Board) was engaged by the Corporation of Warrington to report upon a scheme of drainage for the town.

"This report was adopted, and with certain modifications was carried out. It dealt with a town area of 1,744 acres and a then suburban area of 171 acres; the present acreage of Warrington is 3,115. The major portion is built upon, and has, according to the last census, a population of 64,242, and the whole of the population is provided with sewerage arrangements. There are very few water closets in the town, the excreta being dealt with on a dry conservancy system known as the pail system, but the sewers receive a large volume of water from the large manufacturing industries of the town. The main outfall sewers are of egg-shaped brick sewers varying from 4ft. by 3ft. and 3ft. 6in. by 2ft. 6in. to 3ft. by 2ft.; the secondary sewers are of circular stoneware pipes varying in size from 30in. to 9in. The whole is on the gravitating system excepting the Latchford portion and Padgate section of the town, from which the sewage gravitates to Shone's Pneumatic Ejectors, and is lifted by them to the main outfall sewers. This has enabled the sewers in the two districts to be laid with gradients ensuring good velocities in the flow of the sewage. All the sewers gravitate to and empty into the tidal portion of the River Mersey and into Sankey Brook, its tributary. [The latter is already highly polluted with organic and chemical matter when it reaches the Borough Boundary, and it cannot be said that the contribution of Warrington to the contamination of this stream is other than trifling, compared with the vast volume of sewage poured into it before it gets to the town.—Note by Medical Officer.] There are six outlets into the River discharging in various parts of the town. The sewers are provided with storm overflows discharging also into the tidal portion of the River. Particular attention is paid to the flushing of the sewers to prevent any deposit that might occur in certain low-lying districts of the town."

Household Refuse is collected weekly from the bins with which each house is provided, and is for the most part destroyed by burning, a great deal more being dealt with in this way since the new Electric Works were started. Street refuse not suitable for fuel is tipped on waste ground. There is however a great deal more tipping of noxious material going on than ought to be allowed.

The Scavenging of the Streets and Passages is greatly hindered by want of proper paving; there is, however, some improvement to be recorded.

The Public Institutions for the reception of cases of illness are three in number,

(1) The Warrington Infirmary, containing 54 beds, and in the main a surgical hospital, especially for accidents. It has a large out-patient department, and besides, its medical officers attend at their homes the great majority of the sick persons in the town who are not able to afford to pay a private attendant, and are not in clubs.

A considerable extension to this hospital is about to be erected, which will bring up the accommodation to 100 beds.

(2) The Workhouse Hospital, containing 194 beds, is of recent construction, and designed on modern lines. A Resident Medical Officer has quite recently been appointed to this hospital.

(3) The Borough Isolation Hospital, in Aikin Street, provides the requisite accommodation for 88 patients. The staff at present consists of a matron, sister, 13 nurses, 14 maid-servants, a lodge-keeper, an assistant to the lodge-keeper, and two gardeners. Medical practitioners are allowed to attend their own patients, but rarely avail themselves of the privilege. No charge has been made to patients for many years. The diseases which are treated here are Scarlet Fever, Enteric Fever, and Diphtheria. Additional provision for cases of Smallpox has been provided by the construction of a Sanatorium of 24 beds at Sankey, three miles to the west of Warrington. The Aikin Street Hospital is, according to certain contracts, available for the reception of patients from the Newton Urban District and the Warrington Rural District, when the circumstances of the town permit; it is also a Hospital for the Port Sanitary Authority of Manchester, on which Warrington is represented, and in such capacity takes in patients landed from the Ship Canal within the limits of the Borough.

As auxiliary to the above ought to be mentioned the Warrington District Nursing Association, which has six nurses who carry on an invaluable work among the sick poor.

Licensed Houses.—The character, if not the number of places, where drink may be obtained, must have some relation to the prevalence of alcoholism, that very potent and widespread cause of disease, and consequently these must be taken into account in enumerating the influences at work with regard to the Public Health.

Schools.—With regard to the Public Elementary Schools, excepting in a few of more modern construction, it cannot be held that the sanitary conditions are good. Bad-lighted and ill-ventilated rooms are inimical to the health of children, but those evils are much accentuated by the great overcrowding.

One new Council School is about to be opened, and a second is in the process of construction. The Secondary School mentioned in the last report as being conducted in the buildings of the Technical Institute, has been so successful that there is not sufficient room for the scholars. It is understood that the Education Committee intend to build further on these lines.

The only provision for higher education is that afforded at the ancient Boteler Grammar School.

There are also a few private schools carried on in ordinary dwelling-houses.

SECTION II.

MEASURES TAKEN IN CONNECTION WITH COMMUNICABLE DISEASES.

The year 1906 was not marked by any great outbreak of infectious disease, but Tuberculosis, which has now to be reckoned in this category, though not as yet under legal enactment, shows a mortality higher than normal.

The following are the numbers of cases notified and deaths from the various notifiable infectious diseases, including Phthisis, the reporting of which is voluntary.

DISEASE.							Cases notified in 1906.	Deaths registered in 1906.
Smallpox	...	...	...	...	...	...	1	—
Scarlet Fever	...	...	...	...	...	...	64	2
Diphtheria	...	...	...	...	...	...	24	9
Membranous Croup	...	...	...	...	...	...	4	—
Enteric or Typhoid Fever	...	...	...	...	...	...	43	4
Continued Fever	...	...	...	...	...	...	—	—
Relapsing Fever	...	...	...	...	...	...	—	—
Typhus Fever	...	...	...	...	...	...	—	—
Puerperal Fever	...	...	...	...	...	...	8	2
Cholera	...	...	...	...	...	...	—	—
Erysipelas	...	...	...	...	...	...	68	7
Plague	..	...	...	...	...	...	—	—
Phthisis	...	...	...	...	...	...	80	110

Measures of disinfection have been carried out not only in cases of diseases the sufferers from which were removed to hospital, but also in several instances of Measles. Also after deaths from Phthisis and Puerperal Fever the usual spraying and stoving have been performed.

SMALLPOX.—Only one doubtful case of this disease has occurred in the borough, and owing to uncertainty in the matter was treated at Aikin-street Hospital, in the Old Home. The people of Warrington continue to be well vaccinated, although Mr. Holford's returns shew an increase in the number of conscientious objectors, 13 cases being recorded in 1906 as against three only in the whole of 1905.

VACCINATION RETURNS FOR THE COUNTY BOROUGH OF WARRINGTON.

	1900	1901	1902	1903	1904	1905	Half-year ending June 30, 1906.
Births	2413	2283	2329	2395	2268	2280	1177
Successfully vaccinated ..	1977	1946	2016	2092	2007	2040	1028
Insusceptible of vaccination ..	10	9	19	26	10	15	5
Died unvaccinated	390	288	262	241	221	212	115
Postponement by Medical Certificate	—	—	—	—	—	5	12
Exemptions	15	15	8	8	11	3	7
Removed: Address unknown	21	25	24	27	19	5	6
Had Small-pox	—	—	—	1	—	—	—
Removed to Districts of which the Vaccination Officer has been duly apprised	—	—	—	—	—	—	4
Children born in other districts but vaccinated here..	—	6	62	66	47	41	41

Total number of Conscientious Objectors for the year 1906—13.

SCARLET FEVER.—With the exception of the year 1897 there were fewer cases of Scarlet Fever notified in 1906 than in any of the past 19 years. 64 was the total number of cases, of which 50 were taken to hospital: 78 per cent.

The usual tables with regard to the past history of Scarlet Fever and of other diseases have been brought up to date and are given below.

CHART SHEWING THE DEATH RATE FROM 1863 TO 1906, AND THE INCIDENCE OF SCARLET FEVER FROM 1881.



DARK RED Columns represent the Annual Death Rate per 1,000 living from Scarlet Fever.

LIGHT RED Columns represent the Annual Number of Cases per 1,000 living of Scarlet Fever.

SCARLET FEVER IN WARRINGTON DURING 46 YEARS.

Year.	Popula- tion.	Cases of Scarlet Fever.	Deaths from Scarlet Fever.	Case Mortality per cent.	Cases per 1000 living.	Deaths per 1000 living.	Percentage Isolated in Hospital.
1861	26,107	—	2	—	—	·1	—
1862	26,726	—	—	—	—	—	—
1863	27,345	—	383	—	—	13·1	—
1864	27,964	—	45	—	—	1·6	—
1865	28,583	—	3	—	—	·1	—
1866	29,202	—	15	—	—	·5	—
1867	29,821	—	11	—	—	·3	—
1868	30,440	—	12	—	—	·3	—
1869	31,059	—	109	—	—	3·1	—
1870	31,678	—	20	—	—	·6	—
1871	32,297	—	12	—	—	·3	—
1872	33,227	—	9	—	—	·2	—
1873	34,157	—	34	—	—	·9	—
1874	35,087	—	25	—	—	·7	—
1875	36,017	—	53	—	—	1·4	—
1876	36,947	—	16	—	—	·4	—
1877	37,877	—	45	—	—	1·1	—
1878	38,807	—	104	—	—	2·8	—
1879	39,737	—	40	—	—	1·1	—
1880	40,667	65	12	—	—	·3	—
1881	41,632	362	22	6·0	8·7	·6	88
1882	42,600	306	50	16·3	7·2	1·2	66
1883	43,814	127	27	20·8	2·9	·5	72
1884	44,482	27	4	14·8	·7	·1	77
1885	45,408	20	—	—	·4	—	50
1886	46,343	10	—	—	·2	—	80
1887	47,264	74	1	1·3	1·6	·02	79
1888	47,464	660	77	11·8	13·9	1·6	79
1889	49,000	256	32	12·5	5·2	·7	84
1890	51,000	131	16	12·2	2·6	·3	83
1891	52,986	70	9	12·8	1·3	·2	71
1892	53,809	510	66	12	9·5	1·2	76
1893	54,661	364	43	12	6·7	·8	79
1894	55,504	354	45	12·7	6·4	·8	82
1895	56,366	235	17	7·2	4·2	·3	85
1896	57,219	114	8	6·9	2·0	·1	92
1897	60,877	47	3	6·2	·8	·04	80
1898	61,465	107	9	8·4	1·7	·1	80
1899	62,761	513	29	5·7	8·2	·5	64
1900	63,560	115	8	6·9	1·8	·1	80
1901	64,465	80	1	1·3	1·2	·001	88
1902	65,842	211	9	4·3	3·2	·1	91
1903	67,153	289	8	1·4	4·3	·1	95
1904	68,490	1,042	52	5·0	15·5	·7	87
1905	69,153	201	9	4·0	2·9	·1	77
1906	70,364	64	2	3·1	0·9	·02	78

AVERAGES FOR FIVE-YEAR PERIODS SINCE NOTIFICATION
AND ISOLATION BEGAN (and for the Year 1906).

	1881-85.	1886-90.	1891-95.	1896-1900.	1901-5.	1906.
Cases	168	126	306	179	364	64
Deaths	20·6	25·2	36	11·4	15	2
Case Mortality % .. .	15·6	7·6	11·3	6·8	3·2	3·1
Cases per 1,000 living ..	4·0	4·7	5·6	2·9	5·4	·9
Deaths per 1,000 living ..	·5	·5	·6	·2	·2	·02
Percentage Isolated	70	81	78	79	87	79

TABLE FOR COMPARISON OF THE PREVALENCE OF SICKNESS
AND DEATHS FROM INFECTIOUS DISEASES

(RATES CALCULATED PER 1,000 PERSONS ON THE POPULATION ESTIMATED
TO THE MIDDLE OF THE YEAR).

YEAR.	Smallpox.		Erysipelas.		Diphtheria & Membranous Croup.		Scarlet Fever.		Enteric and Continued Fever.		Puerperal Fever.		Measles.	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1891...	nil.	nil.	—	·094	·396	·207	1·320	·162	·754	·264	—	·037	—	1·700
1892...	9·025	1·015	—	nil.	·258	·129	9·413	1·218	·719	·203	—	—	—	·241
1893...	3·343	·234	·054	·018	·379	·234	6·578	·777	·741	·307	·072	nil.	—	1·317
1894...	·053	nil.	·424	·070	·177	·088	6·267	·798	·601	·141	·053	·053	—	·306
1895...	nil.	nil.	·763	·017	·260	·086	4·079	·294	·798	·208	·086	·071	—	1·906
1896...	·017	nil.	·444	nil.	·136	·034	1·942	·170	·766	·085	·085	·085	—	1·101
1897...	nil.	nil.	·567	·033	·173	·051	2·369	·051	·700	·086	·051	·051	—	·854
1898...	nil.	nil.	·032	·016	·163	·163	1·571	·147	·671	·229	·130	·049	—	·455
1899...	nil.	nil.	·707	nil.	·241	·128	8·423	·449	2·394	·385	·032	·016	—	1·099
1900...	nil.	nil.	·360	·015	·344	·109	1·803	·109	·978	·219	·078	·031	—	·078
1901...	·017	·017	·682	·015	·387	·124	1·240	·017	·511	·062	·077	·077	—	1·008
1902...	·061	·015	·607	·045	·334	·091	3·204	·137	·486	·091	·151	·106	—	·166
1903...	1·280	·059	·476	·014	·506	·016	4·303	·119	·327	·029	·014	·014	—	1·518
1904...	·686	·058	1·153	·131	·481	·058	15·5	·759	·292	·043	·087	·028	—	·534
1905...	·015	nil.	·882	·028	·390	·124	2·9	·131	·216	·058	·216	·144	—	·966
1906...	·014	nil.	·96	·09	·39	·12	·90	·02	·61	·056	·11	·02	—	·46

MEASLES accounted for 33 deaths, and without doubt is one of the most fatal of all infectious diseases to young children. Any measures that will help to diminish it are not only calculated to save life, but to protect many children from permanent ill-health, for it is often productive of disabling after effects.

WHOOPING COUGH.--33 deaths were due to this disease, double the number in 1905. Referring to Dr. Gornall's report of that year it will be seen that this disease is severe in alternate years.

DIPHTHERIA and MEMBRANOUS CROUP contributed of the former 24 cases, and the latter 4 cases. The two are to all intents and purposes the same disease, and taking them together we get a fatality of 32·1 per cent.

The following table illustrates the prevalence of Diphtheria during the last thirteen years.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
No. of cases of Diphtheria notified	10	5	8	8	9	15	22	24	22	34	29	21	24
No. of cases of Memb. Croup ..	—	—	—	—	—	7	1	1	2	—	5	6	4
Death Rate for Diphtheria per 1,000	·08	·08	·03	·04	·15	·12	·20	·12	·09	·01	·05	·12	·128
No. of cases admitted to Hospital	1	—	—	2	2	1	2	9	9	20	4	8	

PHTHISIS.—It has been thought it might specially interest the Committee to hear of the present development of our efforts to deal with Tubercular Phthisis or Consumption in Warrington. This disease is now universally recognized as infective in character, conveyed from case to case among human beings, and probably also from animals to man, especially through the medium of cows' milk. There are of course many predisposing agencies and circumstances, such as unhealthy, airless and sunless dwellings, alcoholism and insufficient nutriment, which cannot be left out of consideration in any attempt to mitigate this appalling source of illness and mortality. Opinion more and more inclines towards believing that half the battle would be won if these predisposing circumstances could be effectively dealt with. At the same time it has to be recognized that persons sick with consumption, and distributing everywhere through their

expectoration infectious matter, are a danger to the public, the more so if, as too often happens, the poverty of the last stages of their lives prevents their being properly cared for. It was with a view to obtaining the co-operation of the medical profession in this war against consumption that an invitation was issued in 1901 to the doctors voluntarily to notify all cases of phthisis at the same remuneration as is paid for ordinary infectious cases. The general result of this invitation has, on the whole, been very disappointing, and shows that we are not in the least likely to obtain the needed information unless compulsory powers, such as some places, *e.g.* Sheffield, already possess, are obtained. A very small minority indeed of the doctors notify cases of phthisis, though they all must see cases from time to time, and most of those cases that are notified are already approaching the end of their career, so that not only are they learnt of too late for any help to be afforded them towards recovery of health, but they come to our knowledge when they have already been a long time, perhaps years, a source of infection to their fellows.

The following table gives the cases notified and the deaths from Tubercular Phthisis since voluntary notification was first introduced in Warrington :—

	Notifications.	Deaths.	Deaths per 1,000 of the population.
1901	40 (Oct. to Dec.)	90	1·396
1902	73	79	1·199
1903	52	84	1·250 .
1904	75	80	1·168
1905	77	95	1·373
1906	80	111	1·577

A considerable proportion of Consumptives of the very poorest classes, labourers and persons of like standing, fall eventually under the protection of the Poor Law, and are attended by the Parish Doctor. What can be more miserable than the slow and painful end of a person suffering from phthisis in the squalor of, perhaps a one-roomed, home with corresponding poverty? Isolation from the general public would be a great gain, apart from the personal advantage to the sufferer; therefore the suggestion that the Sankey Hospital might be used as a small tubercular sanatorium is again brought before the Committee.

The returns of the Poor Law officials are of a certain amount of value to us as revealing the places of residence of some consumptives. They are bound to make these returns in virtue of an order of the Local Government Board, but in Warrington, through some old prescriptive right, £5 a year has to be paid.

At this point may be explained the measures adopted when we know of a case of Phthisis :—

- (a) The district inspector goes to make enquiries, the result of which he enters on one of the usual cards. At the same time he leaves a card of instructions which he explains, and a bottle for the reception of the sputum, the main source of danger.
- (b) Subsequent visits are from time to time paid, and an attempt made to secure the carrying out of the reasonable precautions advised.
- (c) Sanitary defects in the premises we endeavour to get remedied.
- (d) On the death of the patient we endeavour to get the necessary disinfection of the premises carried out.

This exhausts the possibilities at our command, and though some good may be done, it is unfortunately, largely negatived by the fact that many of the cases are only heard of at a very late stage or when they are dead.

There have then been 110 deaths from Phthisis during the current year, and 53 more or less certain cases are known to exist. Some of the cases are advanced, and no treatment is likely to be of any avail towards a cure. All indeed are poverty-stricken, or, at any rate, if wage earners have become so through the failure of strength for daily labour. It is to this class of the population, which can do so little to help itself, that the State has a duty both for the amelioration of the patients themselves and for the protection of the more fortunate remainder who are free. It will, doubtless, be clear to the Committee that the main difficulty is concerned with notification. Most of these poor people are only heard of when in the last stages of the disease or after death; for those in the last stages it is too late to hope for any good from Sanatorium treatment, such as the Committee were interested in seeing in operation at Delamere, and which might possibly be carried out with success in institutions under their own control. Far, later, too than the interest of the general public demands are such cases heard of otherwise; but with proper legal powers to secure them, measures for the prevention of infection might be earlier secured.

A limited number of incipient Phthisis cases are now treated at Aikin Street Hospital. The experiment is of too short duration to quote results, but so far as may be seen is very encouraging.

NUMBER OF SWABS TAKEN FOR SUSPECTED
DIPHTHERIA DURING 1906.

No.	Date taken.		Result of Examination.		
1	Jan.	3rd	Bacillus Diphtheriæ absent.		
2	,,	8th	Do.	do.	do.
3	,,	10th	Do.	do.	do.
4	,,	15th	Do.	do.	do.
5	,,	15th	Do.	do.	do.
6	,,	15th	Do.	do.	do. Streptococci presen
7	Feb.	1st	Do.	do.	do.
8	July	3rd	Do.	do.	do.
9	,,	3rd	Do.	do.	do.
10	,,	4th	Do.	do.	do.
11	,,	4th	Do.	do.	do.
12	,,	13th	Do.	do.	do.
13	,,	13th	Do.	do.	do.
14	Sept.	3rd	Do.	do.	do. Staphylococci present.
15	,,	3rd	Few Cocci only.		
16	,,	20th	Bacillus Diphtheriæ absent.	Streptococci present.	
17	Oct.	21st	Do.	do.	do.
18	Dec.	21st	Do.	do.	do.
19	,,	21st	Streptococci present.		
20	,,	28th	Bacillus Diphtheriæ absent.		

SAMPLES OF BLOOD TAKEN FROM CASES OF SUSPECTED
TYPHOID DURING 1906.

No.	Date taken.	Result of Examination.
1	March 20th	Reaction negative.
2	April 18th	Do. do.
3	„ 18th	Do. do.
4	„ 18th	Reaction positive.
5	„ 30th	Reaction negative.
6	„ 30th	Do. do.
7	„ 30th	Do. do.
8	June 21st	Do. do.
9	„ 21st	Do. positive.
10	„ 21st	Do. do.
11	„ 21st	Do. do. (faint).
12	July 20th	Do. do.
13	Aug. 16th	Do. do.
14	„ 18th	Do. do.
15	„ 18th	Reaction negative.
16	„ 25th	Faint agglutination.
17	„ 27th	Reaction negative.
18	Oct. 2nd	Do. do.
19	„ 11th	Do. positive.
20	„ 11th	Do. do.
21	„ 11th	Do. do.
22	„ 18th	Do. do.
23	„ 18th	Do. do.
24	„ 20th	Do. do.
25	„ 27th	Do. do. (feeble)
26	„ 29th	Do. do.
27	Nov. 16th	Suspicious reaction.
28	„ 20th	Reaction positive.
29	„ 20th	Do. negative.

SAMPLES OF WATER TAKEN FOR BACTERIOLOGICAL EXAMINATION
DURING THE YEAR 1906.

No. of Sample.	Date of taking Sample.		Where taken.			No. of Bacteria per cubic centimetre.	Nature of Bacteria.	
1	Feb.	26th	3, Paul Street	...	...	Infinitive	B. coli communis absent; B. enteritidis sporogenes absent.	
2	May	9th	Smallpox Hospital	...	...	102	B. coli communis absent; B. enteritidis sporogenes absent.	
3	„	9th	Aikin Street Hospital	...	...	421	Do.	do.
4	July	18th	4, School Brow	...	...	Infinitive	Do.	do.
5	Aug.	21st	12, Beamont Street	...	...	2,520	Do.	do.
6	Aug.	21st	50, Garibaldi Street	...	...	Infinitive	Do.	do.
7	Oct.	3rd	38, Factory Lane...	...	...	less than 100	Do.	do.

SAMPLES OF MILK TAKEN FOR BACTERIOLOGICAL EXAMINATION
DURING THE YEAR 1906.

No. of Sample.	Date of taking Sample.		Nature of Bacteria.
1	Feb.	27th	Non-Tubercular.
2	March	28th	Do.
3	„	28th	Do.
4	April	27th	Do.
5	„	27th	Do.
6	May	17th	Do.
7	Aug.	13th	Do.

ANNUAL REPORT ON THE CORPORATION HOSPITALS FOR 1906.

HOSPITALS.

AIKIN STREET ISOLATION HOSPITAL.

					Recognized Accommodation.
WARDS.	Acute Scarlet Fever ...	...	...	...	24 beds.
	Convalescent Scarlet Fever ...	...	...	...	12 „
	Enteric Fever ...	...	...	...	12 „
	Diphtheria ...	...	...	...	4 „
Additional	{ Old Administrative Block will				
	accommodate ...	...	...	...	16 —
	{ The Hut will accommodate ...				3 —

The hut, a relic of the Smallpox Epidemic of 1892 is now used for the reception of Phthisis patients. Three patients can be received at a time, and although it is too soon to speak authoritatively, the experiment seems to be working well.

SANKEY SANATORIUM FOR SMALLPOX.

The original plans are not completed, except as regards the Wards. The Administrative Block is not yet built, nor the disinfecting apparatus installed; also there is no satisfactory means of dealing with refuse, infectious or otherwise.

					Recognized Accommodation.
WARDS.	(1) For Smallpox ...	...	...	...	12 beds.
	(2) For Separation of Doubtful Cases				4 „

It is not unreasonable to hope that when more efficient vaccination, and the introduction of compulsory vaccination, have rendered cases of Smallpox of rare occurrence, this

Hospital will become available for other purposes, such as that of a Convalescent Home, or for the treatment of cases of Phthisis.

The following table is a Summary of the number of Patients and of the Diseases for which they were under treatment during 1906.

	From the Borough.	From Rural District.	From Newton Urban District.	From other Authorities.	Total.
1. Remaining in Hospital at the end of 1905	68	...	6	...	74
2. Admitted during 1906					
As Smallpox	1	...	...	...	1
,, Scarlet Fever	50	1	20	1	72
,, Enteric Fever	32	...	2	...	34
,, Diphtheria	8	...	...	...	8
,, Phthisis	8	...	...	...	8
,, Other Diseases	1	...	...	...	1
Under Treatment during 1906 ...	168	1	28	1	198
3. Deaths during 1906.					
Smallpox ... ..	...	...	...	...	...
Scarlet Fever	3	...	...	...	3
Enteric Fever	4	...	1	...	5
Diphtheria	2	...	...	...	2
Totals	9	...	1	...	10
4 In Hospital at the end of 1906	16	...	2	...	18

SUMMARY OF EXPENDITURE in connection with the two Hospitals for year ending 31st December, 1906 :—

	£	s.	d.
AIKIN STREET HOSPITAL:—			
Salaries	220	0	0
Wages (nurses, servants and gardeners) ...	656	6	8
Provisions	503	12	2
Coal and Coke	173	15	7
Gas and Fittings... ..	50	3	2
Electricity and Fittings	148	17	5
Repairs to Buildings, &c.	155	17	7
Repairs and Renewals to Furniture	17	2	5
Drapery, Clothing, &c.	32	11	11
Surgical Appliances	7	3	3
Medicines... ..	41	17	5
Stimulants	12	15	9
Printing and Stationery	22	2	10
Disinfectants	2	2	0
Cartage	12	10	3
Cleaning Materials	53	9	9
Water and Fittings	41	14	9
Clothing	3	18	0
Rates, Taxes and Insurance	80	3	2
Telephone... ..	9	10	6
Seeds, &c.... ..	37	18	5
Cleaning and Painting	18	7	6
Laundry Machinery, &c.	222	12	6
Asphalting Walks	25	9	3
Sundries	32	4	3
	<hr/>		
	£2582	6	6
	<hr/>		

	£	s.	d.
SMALLPOX HOSPITAL :—			
Wages	61	7	0
Provisions			
Fuel	9	3	10
Cleaning Materials	0	13	11
Rates, Taxes and Insurance	39	18	11
Telephone	22	5	0
Repairs to Buildings	3	9	11
Sundries	7	18	5
	<hr/>		
	£144	17	0
	<hr/>		

INCOME.

	£	s.	d.
Maintenance of Patients from outside districts ...	312	3	6
Newton Urban District Council—One Year's Rent for use of Hospital	100	0	0
Sundries	6	19	3
	<hr/>		
	£419	2	9
	<hr/>		

The garden was productive to the extent of supplying vegetables valued at market prices at £16 6s. 4d., as against £16 15s. 0d. in 1905.

SECTION III.

SCHOOL HYGIENE.

REPORT OF THE MEDICAL ADVISER TO THE EDUCATION COMMITTEE.

Besides the regular inspection by officials of the Health Department of the school premises for the more glaring sanitary defects such as are connected with the drains and also pail closets (where these unfortunately still exist)—an inspection which has greatly helped to the avoidance of nuisances inimical to the health of the children—the chief matters to put on record, as Medical Adviser to the Education Committee, are (1) that this year a new method of dealing with epidemics of measles has been tried. Instead of closing the school immediately on an outbreak of measles as heretofore, now when the number of cases reported in any school equals 3 per cent. of the scholars, all those children who have not had measles, and are therefore susceptible to the disease, are excluded from school for two weeks. There is not yet sufficient data to pronounce on the success or otherwise of this plan. (2) the issuing of a report on the examination of children in the Elementary Schools returned as physically defective.

List of Schools dealt with in consequence of outbreaks of Measles :—

School.	From	Until.	Number of scholars excluded.
St. Ann's National Inf.	Oct. 2nd	Oct. 16th	54
St. Mary's Inf. (Buttermarket St.) ...	Nov. 7th	Nov. 21st	36
Wycliffe British Inf.	„ 13th	„ 27th	21
St. Alban's R C. Inf.	„ 14th	„ 28th	7
Warrington British Inf....	„ 27th	Dec. 11th	55
Holy Trinity, Thewlis National Inf. ...	„ 28th	„ 12th	54
St. Benedict's Inf. R.C.	Dec. 4th	„ 18th	47
St. Georges' Council	„ 8th	„ 22nd	26
Sankey Bridges Wesleyan	„ 11th	Jan. 7th, 07	Whole School
Latchford National Inf....	„ 12th	Jan. 7th, 07	47
St. Barnabas' National Inf.	„ 19th	Jan. 7th, 07	Whole School

It will be observed that in all cases the schools dealt with in consequence of Measles were Infants' Department.

The problem for the future is how to mitigate the ravages of Measles, and at the same time to secure the carrying on the work of the schools uninterruptedly. That this disease undoubtedly calls for vigorous efforts on the part of the Health Authorities needs very little argument to show, for measles is the most fatal disease of childhood, and one the prevalence and fatality of which have been but little affected by modern sanitary improvements. The following table gives the number of deaths from Scarlet Fever, Diphtheria, Measles, and Whooping Cough, and as may be seen measles has been the cause of more deaths than any of the other diseases.

DEATHS FROM SCARLET FEVER, DIPHTHERIA, MEASLES, AND WHOOPING COUGH DURING SEVENTEEN YEARS.									
YEAR.	SCARLET FEVER.		DIPHTHERIA AND MEMBRANOUS GROUP.		MEASLES.		WHOOPING COUGH.		
	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	
1890	13	3	11	6	32	1	53	1	
1891	5	4	10	1	72	8	18	1	
1892	46	20	2	7	2	11	37	...	
1893	34	9	10	3	71	1	23	1	
1894	35	10	4	1	17	...	37	1	
1895	13	4	5	...	107	4	9	1	
1896	7	3	2	...	62	1	44	4	
1897	2	1	1	2	52	...	28	...	
1898	4	7	4	2	27	1	19	...	
1899	21	8	6	2	68	1	33	1	
1900	4	3	12	1	5	...	20	3	
1901	1	...	8	...	62	3	46	3	
1902	6	3	5	1	10	1	15	...	
1903	3	5	10	1	94	3	30	...	
1904	37	15	24	2	33	3	81	5	
1905	3	6	3	4	64	2	5	11	
1906	1	1	4	5	29	4	33	...	
Totals for 17 years...	235	102	121	38	807	44	531	32	
Totals: all ages ...	337		159		851		563		

Chart to Shew the Total Yearly Deaths from 1891 to 1906, from three important Epidemic Diseases.

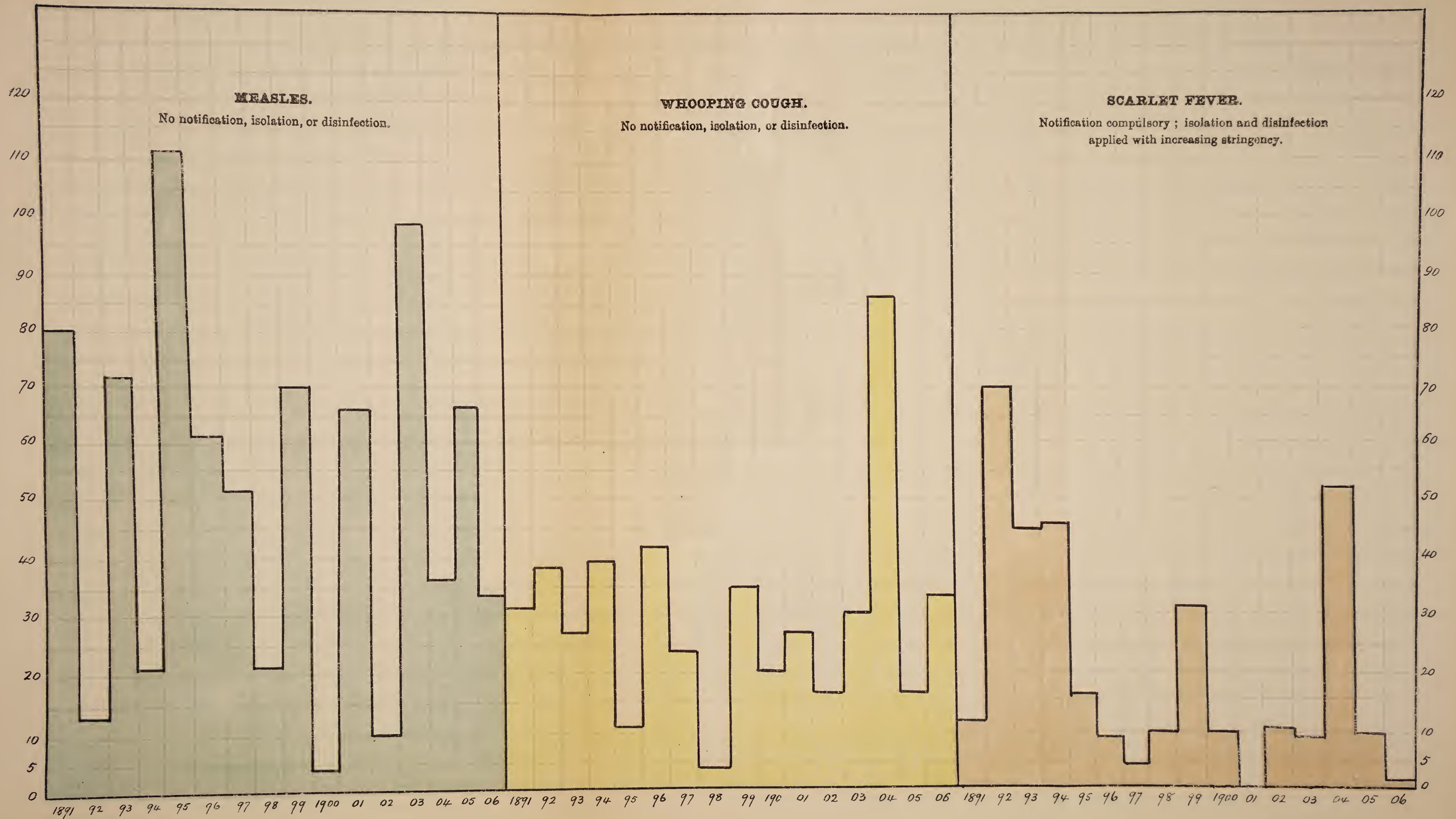


Table giving the number of notices to exclude children from the schools on account of information received from teachers and from other sources as to their being ill, or in contact with infectious disease.

Fairfield National	...	...	...	97
Hamilton Street National	...	...	...	69
Heath Side National	...	...	...	113
Ladies School of Industry	...	...	...	43
Latchford National	...	....	...	77
Latchford St. Mary's R.C.	...	...	...	20
Latchford St. James's Church	...	...	...	45
Sacred Heart R.C.	...	...	...	69
St. Alban's R.C.	...	...	...	61
St. Ann's National	...	...	...	95
St. Barnabas' National...	...	...	...	58
St. Benedict's R.C.	...	...	...	31
St. George's Council	..	...	...	44
St. Mary's R.C....	...	...	...	138
Sankey Bridges Wesleyan	...	...	...	24
St. Peter's Church	...	...	..	39
Silver Street Wesleyan	...	...	...	74
Holy Trinity National	...	...	...	43
Warrington British	...	...	...	129
Warrington Parochial	...	...	...	119
Wycliffe British	...	...	...	92
Total				1,480

Many of these notices refer to three or four children living in the same house, and have regard both to the children ill and to those in contact with them.

REPORT ON THE EXAMINATION OF CHILDREN IN THE ELEMENTARY SCHOOLS RETURNED AS PHYSICALLY DEFECTIVE.

PRESENTED BY DR. GORNALL TO EDUCATION COMMITTEE,
NOVEMBER, 1906.

The delay in the completion of the examination of the children in your Elementary Schools who were reported by the teachers in response to the circular of 24th August, 1905, as having various physical defects, has not been without its compensations, for the time intervening between the despatch to me of the list and my visit to the school has enabled the teachers to discover a good many more cases, especially of poor eye-sight. So that in addition to the names originally brought to my notice, more were, in the course of the period covered by my visits to the schools, made the subject of enquiry. The delay of which I have above spoken was in some measure accounted for by the need for awaiting the result of a circular despatched by the Education Office in October, 1905, informing the parents of the children reported as defective by the teachers, that your Medical Adviser was to examine the children, unless objection was taken to that proceeding. Of the 1,390 children submitted, 111 were those of parents who declined to allow this examination. The rights of parents are undoubtedly worthy of the highest consideration, and the assertion of them in some of these instances, was, I doubt not, indicative of a sturdy independence of character that is not incompatible with a due sense of parental responsibility. Of the rest many it would seem objected to the examination of their children from misunderstanding, supposing it was intended to strip them in public or subject them to other like indignities. Unfortunately however, there were also among these objecting parents (others well known to the Public Health Department, as also to other agencies coming into contact with the lowest classes in this town), whose motive was not far to seek ; they feared fresh publicity in respect of the children they so shamefully neglected. Throughout this work I may say that I have always received the most willing and courteous assistance from the teachers, among whom, I trust, the calling attention to the existence of many various physical disabilities has not been without its influence in stimulating them to a greater interest in the general bodily well-being of the children. I must say that I regard the help of the teachers in this matter of school hygiene as of the most vital importance, for, even as the signs of the times seem to indicate, we are in the near future to have a regular system of periodical inspection of children from the medical standpoint, it will be impossible to dispense with the aid of those daily in close contact with them and able to give so much information

about them, nor indeed would it be in any way desirable. I may (with advantage I think) recall the attention of the Committee to the following circular which I sent out to the teachers.

(COPY.)

Dear ———

As you are already aware, it is proposed to hold an enquiry as to the presence in the Public Elementary Schools of children whose physical condition is inimical to their benefiting by the instruction which they receive. It is also intended to afford parents who object to it, an opportunity of with-holding their children from any medical examination which may be needed. I have no doubt that this intention is correct in the principle it recognizes of parental rights, though I do not believe many people who have the interest of their children at heart are in the least likely to take exception to any such examination as is indicated.

I shall therefore be greatly obliged to you if you will fill in the accompanying form with the names and addresses of and other particulars with regard to children suffering from or believed to be suffering from various physical defects and ailments. Though it is quite true that only by systematic scrutiny of all in the schools would it be possible accurately to gauge the the general condition of the children in Warrington, I feel that the most pressing need, viz. : to deal with the most seriously affected children will be met by asking the help (in finding them) of the teachers, who continually have them under observation.

What I want to know is the names of all the children :—

- (1) Whose eye-sight or hearing is deficient.
- (2) Whose mental condition is abnormal, whether in the direction of dullness or in any other way.
- (3) Who suffer from fits.
- (4) Who often suffer from headaches.
- (5) Who breathe with their mouths open, and
- (6) Any who present noticeable symptoms of ill-health such as pallor, blueness of the lips, emaciation.

There must be numberless other signs of defects that are obvious to the teacher which it is unnecessary for me here to enumerate, but as a guide to you as regards the eye-sight, I will quote from a recent work on the medical inspection of school children :—

(1) WHAT THE TEACHER SHALL OBSERVE.

The teacher shall habitually scan his class to discover eye troubles.

Once he grasps their importance, he will at a glance pick out those affected. He should mark for examination the following varieties of children.

- (a) All those with "sore eyes" the name commonly given to chronically or acutely inflamed eye-lids.
- (b) All those with styes.
- (c) All those whose eyes are congested and "red" where they should be blue milk-white.
- (d) All those that squint either constantly or occasionally.
- (e) All those that hold their reading books nearer to the face than one foot.
- (f) All those that put their books at arm's length in order to read.
- (g) All those that cannot read blackboard writing freely from their seats.
- (h) All those that "peer" like a cat in the sun, or shut their eye-lids to a chink.
- (i) All those that have a drawn anxious look when reading from map, or blackboard, or wall-card.
- (j) All those that slope the head to read.
- (k) All those that complain of headaches, or shew very small pupils at the end of the day.
- (l) All backward children shewing one or more of these symptoms.
- (m) All those that fear the light.

The reasons for this rough first inspection will appear among the details following. The grosser eye-diseases are easily suspected. But in children the capacity to accommodate the long-sighted eye to vision of near objects is very great, and frequently cannot be detected by any reading test. But every teacher can recognize "blar eye," squint, hairless eyelids, &c. These have all very direct bearings on the primary functions of the eye, and may be an index of more serious conditions.

So much for the eyes. With regard to the various other conditions about which information is desirable, it is safe, I think, to leave it to you to note the most obvious.

I am,

Yours faithfully,

Such, therefore, being the conditions under which this enquiry was carried out, it cannot of course be claimed for it that it is in the least on scientific lines, or that any very certain deductions can be safely drawn from the facts revealed. (Nevertheless I think what has been found by the means employed is quite sufficient to indicate that the physical condition of Warrington children is considerably better than that of the children in other localities, in some of which more elaborate enquiries have been made.)

For instance, the exact character of the vision of the scholars can only be arrived at by the examination, by a skilled ophthalmologist, of every child. In the same way an opinion as to the general physical development would only have been arrived at from the consideration of data obtained by proper anthropometric measurements and tests. Such more thorough inspection of school children will no doubt in the long run be reckoned an essential part of the work of the Public Health Department of the Warrington Corporation.

This scope of the state in respect of preventive medicine is in the future not to be limited to dealing with epidemic diseases and matters of ordinary sanitation only, but to be extended to all conditions affecting the physical well-being of the people and surely among these must be included the existence of physical defects in the children, not merely in so far as they interfere with education, but because they are likely in all kinds of ways to influence their whole ultimate life.

The means which it would be wisest to adopt for securing the best conditions of health for the children without taking off the shoulders of the parents any of that responsibility which many of them are only too willing to shirk may well be the subject of careful consideration, but the report of the Medical Officer of the Education Committee of the London County Council, contains some words on the subject of school nurses which may I think be advantageously quoted.

“For some years nurses had been provided by voluntary means to visit a few schools, and about three years ago the

late authority appointed a nurse to visit schools in the Southwark, Tower Hamlets, and Hackney Divisions. After a year's experience (8/1/03) they appointed three nurses, and immediately after the summer vacation of 1904 the Council raised the number to 12. This number is quite insufficient for the work wanted.

“The nurses provided by the voluntary associations attended a few schools frequently, they examined children with cuts, sores, abscesses and bruises, and applied dressings, or other treatment. The work done appeared at first glance as a work of kindness and charity, but it was neither educational nor really of serious use, yet for sentimental reasons it was much appreciated by teachers, managers and others.

“The nurses working under the late School Board, and continued by the Council give no treatment, but are accomplishing a highly important work of considerable educational value. They were appointed first to examine cases of ringworm, and were, in fact, termed ringworm nurses; then their duties were extended to all forms of obvious uncleanness and disease. They also follow up their school work in many cases by home visits, and there is a noticeable tendency, both among the teachers and school attendance superintendents, to utilize the nurse's visits as a means of securing better school attendance.”

I have classified under several headings in the table accompanying this report the children examined in each school, and shall now proceed to make some observations on the results arrived at in respect of each kind of defect reported.

VISION.—In the circular which I sent round before visiting the schools for the purpose of my enquiry, I laid special stress on the question of vision, because I knew very little had been done in the matter in Warrington, and the establishment of an eye department at the Infirmary was only of comparatively late date. Quoting from the recent work of Dr. Leslie Mackenzie I pointed out certain signs that ought to attract the attention of teachers to the state of their pupils' vision. A good many of the children with defective vision were of course well known to the teachers, who had endeavoured in many instances to mitigate the difficulty in their seeing by putting them in the front row of the class, but the description given in the book to which I have above referred of the children who should be suspected of poor eyesight doubtless led to the inclusion in the number reported to me of many whose deficiency was comparatively trivial. Consequently there are included in the 508 put in the Table as having

defective vision, a considerable number whose eyesight if not good, could be considered as fair rather than bad. It is for this intermediate class that in the opinion of ophthalmologists, glasses are not needed, (*vide*: British Medical Journal, July 28th, 1906, Article on Errors of Refraction among children attending Elementary Schools in London) at any rate while they are of school age. It does not however necessarily follow that the cases which would be called bad ones are remediable by glasses; the defect may be of a kind to which glasses are not applicable, or so bad as to be unimprovable by that means. The method I employed was to make each child reported as defective read the test types at a distance of six metres in as good a light as I could obtain. I generally got the teachers to provide me with a separate classroom, and had the children brought in one at a time so as to prevent anyone reading the letters before his turn; in other schools I did this work in the playground, certainly a much more pleasant place in the summer than the classrooms. At first I tested separately and recorded for each eye the acuteness of vision ascertained, but this I found a long process, and with the limited time at my disposal, a hindrance to the completion of the enquiry. Moreover the onus of any decision as to the nature of the eye defect was to be laid on the medical man, whom, rather than a spectacle dealer, the parents were to be urged to consult. So during the latter part of my investigations in examining for vision I made each child read the test types with the two eyes and if he did not reach perfect acuteness of vision put him down as defective. Numbers of parents therefore were written to whose children were very little below the standard, so little, as in one instance I know of, as to lead an optician to declare to the parents that there was nothing wrong; yet this child when re-tested by me was again shewn to miss absolute perfection by two letters. The main object of this enquiry will, however, despite the somewhat cursory method of eye-testing which I followed, have been achieved if it leads to two things, the one more immediate, viz: to secure for the children at present under instruction some measures of remedy for defective vision, the other in the future, the systematic examination of the eyes of all children when they reach an age suitable to the purpose. Having once, however, called attention to the existence of this evil, a demand for treatment is a necessary consequence, and to secure this a circular was sent out to the parents in the following terms.

(COPY.)

To the Parents or Guardians of
residing at

Your child now attending School has
been found by me to be suffering from defective vision, which is

likely to hinder progress at school. You are therefore urged to obtain medical advice without delay, but are particularly warned against getting spectacles except with a doctor's certificate.

In cases suitable for a recommend the eye department of the Warrington Infirmary (Thursdays at 2 p.m.) affords the opportunity of obtaining spectacles if needed.

J. G. GORNALL,

Medical Officer of Health and

Medical Adviser to the Education Committee.

It will be observed here that no assertion is made that the child requires spectacles, but attention is called to the facilities afforded by the eye department of the local infirmary. Now to this institution, compared with those in similar towns, recommends are granted on a particularly liberal scale, so that if parents are poor, it is only the cost of the glasses that is likely to be an obstacle to proper treatment for the child with defective eye-sight, and these by some means or other they can usually manage to get if they really take the trouble; in the case of some better to do parents it has also been observed that a wholesome stimulus to provide glasses which they have long known to be needed, has been the prospect of a delay in the promotion of their children to a higher department. Of course in some schools there were children already provided with spectacles; this was, I find, done for many of them during the six months that intervened between the commencement and termination of the enquiry. These have been included in most cases in the totals of those having defective vision, though of course, no word was sent to the parents about the matter. From the following list it will be seen that though there is an average of 3·6 per cent. of the total number of children on the books with eye-sight below normal, the proportion in the different schools varies enormously, *e.g.* from 12 per cent. at St. Barnabas' Mixed Department, to 1·6 per cent. at the Warrington British Mixed Department. The figures it should be understood are not strictly accurate, because in some instances children already treated are included, in others not; but the children with glasses were not so many as to make a great difference. Moreover the powers of observation and the trouble taken by different teachers is a factor in the statistics. Nevertheless the fact that in Warrington, by the aid of the School masters' 3·6 per cent. of children were found to have eye-sight below normal, compares very favourably with the 10 per cent. demonstrated by the ophthalmologist of the London County Education Authority to have really bad vision. The 3·6 per cent.

in Warrington includes a very considerable proportion who would in London be considered to have fair vision and not be included in the number who make up the 10 per. cent. with badly defective eye-sight. It is evident, therefore, that the eye-sight of Warrington children generally is vastly superior to that of those attending the Metropolitan schools.

On the other hand, the great variation in the percentage of those with defective vision in the different Warrington Schools, making all allowance for the discrepancies in the methods of estimating the figures, is a strong argument in favour of the inspection of all school children.

SORE EYELIDS.—I have included under this heading 37 cases of what is known to medical men as blepharitis or more popularly as “weak eyes,” a complaint to which some delicate children are peculiarly prone, and which if neglected, may have troublesome results. Though usually not a serious matter, this complaint is occasionally found of a severity to give rise to serious inconvenience to the child.

HEARING.—I have classified separately 28 cases reported as simply deaf but with no ear discharge, and 56 who had running from one or both ears, with generally some degree of impairment of hearing. The intimate connection between the work of the Medical Officer of Health and that of the Medical Adviser to the Education Committee is nowhere more strikingly seen than in this connection, for the vast majority of these cases of ear discharge are the result of either scarlet fever or measles, which, occurring in epidemic form from time to time leave large numbers of children with permanent damage to the ears, organs of great importance in their educational progress. It is thus seen that the efforts of the Sanitary Authority to prevent or mitigate such outbreaks, have an important reaching far beyond the simple matter of school attendance. Successful efforts to restrain the prevalence of either Scarlet Fever or Measles mean that children are saved from the disability of imperfect hearing.

ADENOIDS.—Closely associated with difficulty of hearing is what is known as “adenoids.” This affection of the throat, often accompanied by enlarged tonsils, and recognised as of great importance by the medical profession, existed, I saw reason to suspect, in 70 children, or in about 5 per cent. The signs which would lead one to form a opinion that a child had adenoids, are mouth breathing and a tendency to a constantly running nose, with generally a heavy and vacant expression, and a greater or less degree of impairment of hearing. A considerable number of the cases of deafness reported by the teachers were due to adenoids.

The effects of adenoids, however, are not limited to these above-mentioned symptoms, for they are responsible by their interference with breathing for maldevelopment of the chest in many children, and the general detriment to development, both mental and bodily, associated with them is serious. Another point of interest, however, with regard to adenoids, is that children so afflicted are held (and with truth, according to my experience,) to be much more liable to contract Scarlet Fever and Diphtheria ; moreover they have those diseases in a much severer form. It will thus be seen that measures for detecting and securing the treatment of cases of adenoids among school children are calculated to help on the objects at which isolation hospitals and disinfection are aimed, the prevention of disease. It will therefore not have been in vain, if by writing to the parents of the adenoid children, as has been done, the proper treatment is secured for them.

DEFECTIVE SPEECH AND STAMMERING.—Twenty-five are included in my return as suffering from the former (in some instances a result of cleft palate) and fifteen are stammerers. These comparatively small numbers do not perhaps furnish a sufficient reason for any expenditure of money in the provision of a special teacher, as has, I believe, been done with some success under other educational authorities ; still, for the children individually, it is a pity that they cannot be helped to overcome so serious a drawback to success in life. Many of these cases are undoubtedly associated with some degree of mental deficiency, and would probably be suitable for treatment as such.

DEAF AND DUMB.—There are actually four children in attendance at school who can be so described. It is needless to say that they can derive little benefit from going, and they must be a constant source of worry to the teachers.

EPILEPTICS.—I had only seven pointed out to me as subject to epileptic fits, and of these some only had them in the night. Probably, however, the really bad epileptic cases among the child population do not attend school, or have mostly drifted into public institutions such as the Workhouse and the Idiot Asylum.

MENTAL DEFICIENCY OR ABNORMALITY.—To my mind the knowledge that 105 children are included under this heading is the most serious matter revealed by the enquiry. Apart from the fact that they are mostly so defective that they fail to benefit by ordinary school teaching, except to a very limited extent, there is a great objection to having these children

in the public schools, both on account of the worry they are to the teachers, and because of the detrimental influence which their society exercises on normally constituted individuals.

The children I have included under this heading are of many and various types, varying from simple dullness of mind to actual imbecility, while there are others also who, besides being difficult or, in some instances, impossible to teach, present tendencies to aberrations of conduct of a serious kind, *e.g.* in one school a pupil was present who might reasonably be called a kleptomaniac.

The proportions of the children vary very much in the schools, but one, the Latchford Roman Catholic, appeared to have an unusually large number, and these mostly bad cases.

I have said enough, I think, to show that some special arrangements are desirable for at any rate the worst of these children. I marked a number of them as needing special treatment, and I am sure that by a careful weeding out, a class of considerable size might be provided for receiving such instruction as can be given by teachers specially trained for the purpose. More particularly do I regard it as important that the children who are imbecile or who are peculiar in mental constitution should be withdrawn from association in school with the general mass.

BAD TEETH.—It may seem an absurdly small number to return five only as having bad teeth. This, however, only means that in five children the defects reported by the teachers were due to bad teeth. While it is important that children should be taught at school (if they cannot learn at home, as they ought to, for surely such is a parent's work) to clean their teeth, and that their parents should be compelled to see that their teeth are attended to by the dentist when required. I believe that the state of the teeth of the children in Warrington Elementary Schools is comparatively good.

MINOR AILMENTS.—64 can be put under this heading, and among them are a number of cases of general debility, about 25 in all, which may or may not have been due to poverty or neglect. The homes of these children are under observation and an attempt is being made by the Health Department to secure for the children better care at the hands of those responsible for their well being, as well as to find out so far as is practicable (for here we tread on somewhat dangerous ground) the cause or excuse for such neglect of parental duties. Speaking from years of experience, both in this town and others, I have no hesitation in saying that the general nutrition of Warrington children is

undoubtedly good, though of course varying according to circumstances and different classes, and compares most favourably with what is seen in other like centres of population. This is what I judge from what I have seen in the schools as well as in the patients (now some thousand in number) who have passed through the Fever Hospital under my care. This somewhat sweeping statement is capable of being put to the test by the taking of proper anthropometric measurements.

The cases of malnutrition due to want of food are certainly comparatively few in number in Warrington and in the main connected with the abuse of drink.

J. G. GORNALL, M.A., M.B.,

Medical Adviser to the Education Committee.

Tabulated Statement with regard to Children in the Elementary Schools having Physical Defects.

	Warrington British Mixed.	Cairo Street Infants.	Thewlis Street Infants.	Warrington Parochial Boys.	Warrington Parochial Infants.	Fairfield Higher Girls.	Fairfield Girls.	Fairfield Infants.	Grappenhall Road Council Infants.	Hamilton Street National Boys.	Hamilton Street National Girls.	Hamilton Street National Infants.	Heathside National Boys.	Heathside National Girls.	Heathside National Infants.	Ladies School of Industry (Girls).	Latchford National Mixed.	Latchford R. C.	Latchford St. James'.	Latchford St. James' Infants.	Sacred Heart Mixed.	Sacred Heart Infants	St. Alban's R. C. Mixed.	St. Alban's R. C. Infants.	St. Ann's Senior Mixed.	St. Ann's Junior Mixed.	St. Ann's Infants.	St. Barnabas National Mixed.	St. Barnabas National Infants.	St. Benedict's R. C. Mixed.	St. Benedict's R. C. Infants.	St. George's Infants Council.	St. Mary's R. C. Boys.	St. Mary's R. C. Girls.	St. Mary's R. C. Infants.	St. Peter's Infants.	Sankey Bridges Infants Council.	Silver Street Wesleyan Mixed.	Silver Street Wesleyan Infants.	Trinity National Mixed.	Trinity National Infants.	Wycliffe British Mixed.	Wycliffe British Infants.	TOTALS.
Children on the books - - - - -	918	221	236	736	381	227	385	274	261	281	319	216	467	395	222	209	246	242	476	187	185	141	328	158	266	274	188	306	148	326	345	292	313	314	202	251	179	631	230	214	298	620	201	13,309
Reported by teachers as defective - - - - -	39	12	16	72	39	21	40	11	21	51	62	30	67	32	7	29	35	50	48	23	23	13	34	9	95	19	26	85	41	44	16	20	26	23	17	11	9	101	23	5	27	18	1,390	
Left at time of my visit - - - - -	3	1	—	6	3	2	7	1	4	14	2	4	8	7	1	4	7	5	8	4	3	3	4	—	20	1	2	7	—	7	—	3	4	2	3	—	—	—	2	—	5	1	158	
Parents objecting to examination - - - - -	10	—	2	3	1	1	4	1	4	3	5	3	9	4	1	2	2	9	6	2	1	4	4	—	7	3	2	2	—	3	1	1	2	1	1	—	—	—	1	—	2	3	111	
Absent at the time of visit - - - - -	—	1	1	—	4	—	7	2	—	1	7	1	3	1	—	1	3	4	2	—	—	—	4	—	5	—	3	10	6	5	4	1	4	3	6	—	—	—	16	1	—	1	—	107
Dead since reported- - - - -	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	5	
Number examined - - - - -	26	10	13	62	31	18	22	7	13	33	48	22	47	20	5	21	22	32	31	17	19	6	22	9	63	15	19	66	35	29	11	15	16	17	6	11	9	84	19	5	19	14	1,009	
Recovered or under medical treatment - - - - -	1	—	—	—	2	1	2	—	2	3	2	1	2	—	—	—	1	—	2	—	—	—	—	—	5	—	—	2	2	—	1	2	2	—	2	—	—	—	—	—	2	—	37	
With defective vision - - - - -	15	6	6	37	5	12	9	3	1	12	23	10	28	12	4	17	13	12	14	11	8	4	20	—	17	8	9	38	2	21	5	5	7	8	1	6	6	60	11	5	11	6	508	
With sore eyelids - - - - -	2	1	—	2	7	—	—	—	—	1	1	2	—	—	1	—	—	3	2	1	2	—	—	—	2	—	—	—	—	—	1	2	—	—	—	1	—	2	—	—	1	1	35	
With deafness - - - - -	1	—	1	—	—	3	4	1	—	—	—	—	3	—	—	—	—	—	2	—	—	—	—	—	4	—	—	5	—	1	1	—	—	—	—	—	—	—	1	1	—	—	28	
With ear discharge - - - - -	4	—	2	3	—	—	—	—	2	4	3	—	5	5	—	—	1	—	1	—	—	—	1	1	3	—	3	—	2	—	1	1	—	—	—	—	—	—	9	4	—	—	1	56
With mental deficiency or nervous abnormality	3	1	3	—	5	—	3	1	2	3	7	5	4	—	—	1	3	11	1	6	3	1	1	3	—	—	1	5	7	2	1	—	2	5	3	—	1	—	5	5	—	1	—	105
With possible adenoids - - - - -	—	—	3	5	2	1	1	—	—	4	3	2	1	1	—	1	—	3	1	—	4	—	—	—	10	6	2	2	5	1	—	2	—	—	—	—	1	—	4	—	—	—	5	70
With defective speech - - - - -	—	1	—	1	2	—	1	—	1	1	1	1	—	1	—	—	—	—	—	—	—	—	—	3	4	—	—	—	1	—	—	2	—	—	—	—	—	2	—	—	1	—	24	
Stammerers - - - - -	—	—	—	2	—	—	—	—	—	—	3	—	—	—	—	—	—	—	3	—	—	—	—	1	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	
Deaf and Dumb - - - - -	—	—	1	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
With bad teeth - - - - -	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	5
Epileptic - - - - -	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	7
With various minor ailments - - - - -	—	1	—	6	4	—	1	—	1	3	4	—	2	1	—	—	1	2	—	—	—	1	—	—	3	1	4	2	13	2	—	1	4	2	—	1	—	3	—	—	1	—	64	
Having no defect - - - - -	—	1	—	5	3	1	1	1	2	3	4	—	2	—	—	2	3	2	3	—	2	—	—	—	9	—	—	10	1	3	1	—	—	1	—	1	—	—	1	—	2	1	65	

COUNTY BOROUGH OF WARRINGTON.

THE

Sanitary Inspector's Report

FOR THE

YEAR ENDING 31st DECEMBER, 1906.

To the Chairman and Members of the Health Committee.

GENTLEMEN,

I have the pleasure to submit for your consideration my Sixth Annual Report on the operations of the Health Department, for the year ending 31st December, 1906.

Town Hall, Warrington,

May, 1907.

SUMMARY OF NUISANCES DEALT WITH DURING THE YEAR 1906.

The following Table shows the nature and number of nuisances registered during the year:—

Overcrowded houses	...	...	...	...	14
Inadequate ventilation	...	...	...	...	12
Dirty dwellings (fault of occupier)	...	..			4
Defective floors	...	...	...	...	46
„ walls and ceilings	...	..	...		89
„ roofs	...	...	...	...	56
„ spouting	...	...	...	...	497
„ slopstones and pipes	...	...	...		99

Want of slopstones and pipes	...	...	...	6
Untrapped drains...	...	...	...	21
Blocked drains	...	...	...	365
Defective drains	...	...	...	131
Defective pavement in yards and passages	...	...	...	203
Damp basement	...	...	...	89
„ outside brickwork...	...	...	...	4
Pools of stagnant water	...	...	...	21
Defective pail closets and ashplaces	...	...	...	346
„ water-closets	...	...	...	19
„ midden closets (converted to pail closets)	...	...	...	6
Insufficient sanitary conveniences	...	...	...	9
Poultry kept so as to be a nuisance	...	...	...	6
Accumulations of manure	...	...	...	24
„ „ refuse...	...	...	...	8
Defective middensteads	...	...	...	3
Dirty Walls of passages and yards	...	...	...	201
Miscellaneous	...	...	...	90
Total				2368

Nuisances reported by Inspectors	...	...	2325
„ „ Inhabitants	...	...	43
„ removed or abated	...	...	2300
„ reported, which were unabated at end of 1906	...	...	68
Preliminary Notices sent calling attention to nuisances	...	...	745
Legal Notices served to abate nuisances	...	...	457
Summons issued for non-compliance with Notice	...	...	1
Order made for abatement of nuisances and Defendant to pay (3s. 6d.) costs	...	...	1

INFECTIOUS DISEASES.

588 visits were paid by the Inspectors to houses where cases of infectious disease occurred, to make such enquiries as might be necessary with a view to ascertaining the cause

of the disease, to give advice or caution so as to prevent the spread of infection, and to make an inspection as to the sanitary condition of the premises. Attention was also paid to the disinfecting of the premises, bedding and clothing, and also to the cleansing and stripping of the walls where necessary.

All such information was submitted to the Medical Officer of Health, and the matters contained therein dealt with according to his instructions.

DISINFECTION.

Month.	Number of Houses.		Number of Articles.	
1906—January	...	15	...	188
February	...	9	...	69
March	...	20	...	172
April	...	20	...	234
May	...	23	...	205
June	...	13	...	102
July	...	11	...	110
August	...	27	...	312
September	...	17	...	156
October	...	31	...	372
November	...	28	...	296
December	...	21	...	209
	Total	<u>235</u>	Total	<u>2,425</u>

Number of houses cleansed and limewashed after cases of							
Infectious Disease ...	...	...	...	...	...	..	92

SMOKE OBSERVATION.

151 observations each extending over a period of 30 minutes have been taken during the year. In 34 cases where black smoke was emitted from the chimneys for more than three minutes out of the thirty minutes, the firms were warned by letter or otherwise dealt with in accordance with the instructions of the Medical Officer of Health.

SALE OF FOOD AND DRUGS ACTS.

Under these Acts 201 samples of food were obtained and submitted to the Public Analyst. The result of the analyses and report of proceedings taken will be found in a special report by the Public Analyst.

BAKEHOUSES.

260 Visits have been paid to the 57 Bakehouses which are in use within the Borough. The sanitary control of Bakehouses is carried on under the Public Health Acts and Factory and Workshop Acts.

COWSHEDS AND MILKSHOPS.

There are 86 Milkshops and 14 Registered Cowsheds within the Borough. 390 inspections have been made of the Milkshops, and 109 inspections of the Cowsheds and Cattle kept therein: one new cowshed and seven premises on which milk had not been previously sold were registered during the year: seven registered premises have been given up.

COMMON LODGING-HOUSES.

There are 28 Common Lodging-houses within the Borough registered to accommodate 562 persons: 540 visits have been paid to them, and a strict watch kept over travellers lodging therein with a view to preventing the spread of infectious diseases. No cases of infectious sickness have been dealt with at registered lodging-houses during the year.

HOUSES LET IN LODGINGS.

There are 36 houses within the Borough registered as above: 87 visits have been paid to them. The number of houses registered under the above heading have gradually diminished during the last ten years. As there are plenty of empty houses within the Borough, the practice of allowing two families to occupy one house has been prevented as far as possible.

CANAL BOATS.

94 Canal Boats which were berthed on the River Mersey were inspected during the year. They were registered to accommodate 530 persons, but only 195 persons occupied them, viz.: 189 males, 5 females, 1 child. No cases of Infectious Disease were found upon Canal Boats during the year.

SLAUGHTER-HOUSES.

There are 19 private Slaughter-houses within the Borough. During the year 1,731 inspections have been made of them. Twelve nuisances have been found, and notices served specifying certain work for abatement thereof were duly attended to.

UNWHOLESOME MEAT, FISH, ETC., SEIZED AND DESTROYED.

Class of Articles Seized.	Quantity.	No. of Persons Summoned.
BEEF	13656lbs.	...
MUTTON	112lbs.	...
PORK	574lbs.	...
VEAL	105lbs.	...
FISH	3884lbs.	...
RABBITS	376lbs.	...
TRIPE	224lbs.	...
OFFALS	1751lbs.	...
	Total 20682lbs.	

Fourteen Carcases were surrendered by the Owners in consequence of the animals having been effected with Tuberculosis.

REFERENCES TO OTHER DEPARTMENTS.

Referred to Borough Surveyor	62
„ „ Water Engineer	45
„ „ Sanitary Superintendent	108

The references to the Borough Surveyor comprise blocked drains and defective pavement in streets and back passages.

The references to the Water Engineer are mainly defective fittings resulting in waste of water.

Those made to the Sanitary Superintendent are for want of ashtubs and pails, defective ashtubs or leaking pails, or the non-removal of house refuse.

CONTAGIOUS DISEASES (ANIMALS) ACTS AND ORDERS OF THE BOARD OF AGRICULTURE.

Four suspected cases of Swine Fever were reported to the Board of Agriculture during the year. The Board's Veterinary Inspector made enquiries into each case and upon his reports the Board stated that Swine Fever did not exist in any of the cases.

The Swine Fever (Regulation of Movement) Order of 1903 has been in force by order of the Board of Agriculture since the 14th March, 1906. Under this order Cumberland, Lancashire and Westmorland are classed as one Scheduled Area, and within these three counties some may be moved without a licence, Swine

coming into this Area from any other county must be accompanied by a licence which will be granted by the Inspector of the district into which the same are to be moved on the production of a declaration signed by the owner of the pigs and countersigned by the Police Officer of the district where the pigs had been kept for the last 28 days.

SHEEP DIPPING (NORTH OF ENGLAND) ORDER, 1906.

Warrington is within the Area scheduled under this Order, but few if any store sheep are kept within this Borough, therefore the only persons affected are the owners of sheep who send animals to the weekly sales. These sheep have to be dipped within the time specified in the Order, and a declaration produced signed by the owner stating that the Order has been complied with before the sheep can be offered for sale.

SUMMARY.

Workshops within the Borough	...	...	215
Bakehouses	„	„	57
Slaughter-houses	„	„	19
Milkshops	„	„	86
Cowsheds	„	„	14
Common Lodging-houses	„	„	28
Houses Let in Lodgings	„	„	36
Tripe Boilers	„	„	4
Knackers Yard	„	„	1

In conclusion my thanks are again due to the District Inspectors and Clerks for their valuable help in carrying out the work of the Department which is constantly on the increase. Their ready response to perform any duty devolving upon them is both gratifying and worthy of mention.

WALTER T. FLOOD,

Chief Inspector of Nuisances.

ON THE WORK OF THE FEMALE INSPECTORS.

During the year 1906 the two Lady Sanitary Inspectors, Miss Hoyle and Miss Hughes, continued to work throughout the town. Much of their time has necessarily been taken up by school work, and Miss Hoyle being certified under the Central Midwives Board, has naturally devoted more time to the supervision of midwives. The visits of the Lady Sanitary Inspectors are much less resented than was heretofore the case, requests often being sent to the office that they should visit and advise, but infinite care has been taken that the advice should not be of a medical nature, but rather advice to seek proper advice, and suggestions as to cleanliness and carefulness.

VISITS PAID BY MISS HOYLE DURING THE YEAR 1906.

Houses visited under the Public Health Act ...	288
„ „ „ owing to Special Enquiries, &c.	599

Number of Enquiry Visits with regard to—

Infantile Deaths }	136
Diarrhœa Deaths }	
Cases of Measles	336
„ Chickenpox	133
„ Whooping Cough	178
„ Mumps	162
„ Ophthalmia	146
„ Other Sickness	146
„ Ringworm, Eczema, and }	394
„ Dirty Heads	
Re-visits	92
Visits to houses where there were new-born babies	91
Under Factory and Workshops Act (Outworkers)	20
Total ...	2,721

Number of Notices served for Cleansing Dirty Houses	1
„ References to Inspector of Nuisances ...	31
„ School Notices sent	1070

VISITS PAID BY MISS HUGHES DURING THE YEAR.

Houses visited under the Public Health Act ...	821
„ „ „ to make Special Enquiries, &c. ...	996

Number of Enquiry Visits with regard to—

Infantile Deaths and Deaths from } Diarrhœa	200
Cases of Measles	259
„ Chicken Pox	95
„ Whooping Cough	116
„ Mumps	78
„ Ringworm, Eczema and Dirty Heads	408
„ Other Sickness	199
Number of Re-visits	232
Visits to houses where there were new-born babies	386
Visits under Factory and Workshop Acts (Outworkers)	7
Total ...	3797
Notices served for cleansing Dirty Houses ...	4
References to Inspector of Nuisances	119
School Notices sent... ..	1191

At the end of the year the Committee regretfully accepted the resignation of Miss Hughes. Her place has not yet been filled.

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK.

1. —INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspec- tions.	Written Notices.	Prosecu- tions.
Factories (including Factory Laundries)...	129	24	...
Workshops (including Workshop Laundries)	656	25	...
Workplaces (other than Outworkers' premises included in Part 3 of this Report)...	39	5	...
Total	824	54	...

2.—DEFECTS FOUND.

Particulars.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied.	Referred to H.M. Inspect'r	
NUISANCES UNDER THE PUBLIC HEALTH ACTS : *				
Want of cleanliness	5	4	...	...
Want of ventilation ... ..	...	...	...	...
Overcrowding ... ..	..	...	...	...
Want of drainage of floors ... ..	...	...	...	...
Other nuisances	29	29	...	...
† Sanitary accom- modation {	insufficient	4	3	...
	unsuitable or defective	19	19	...
	not separate for sexes	1	1	..
OFFENCES UNDER THE FACTORY AND WORK- SHOP ACT :				
Illegal occupation of underground bake- house (S. 101)	1	...	...	...
Breach of special sanitary requirements for bakehouses (SS. 97 to 100)... ..	5	5	...	...
Other offences ... ..	...	...	...	...
(Excluding offences relating to outwork which are included in Part 3 of this Report) ... ..	...	...	...	...
Total	64	61	...	...

* Including those specified in Sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

† For districts not in London state here whether section 22 of the Public Health Acts Amendment Act, 1890, has been adopted by the District Council ; and if so what standard of sufficiency and suitability of sanitary accommodation for persons employed in factories and workshops has been enforced.

3.—HOMEWORK.

Outworkers Lists (Section 107) :—					Wearing Apparel.	File Making.
Lists received from Employers twice in the year						
Lists					6	4
Outworkers					45	67
Lists received from Employers once in the year.						
Lists					2	1
Outworkers					4	4
Numbers of { received from other Addresses of Outworkers { Councils ... ..					...	...
{ forwarded to other Councils					9	71
Number of Inspections of Outworkers Premises					27	...

4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the year :—					
Important classes of workshops, such as workshop bake- houses, may be enumerated here.	{	Bakehouses	57		
		Boot Repairers	30		
		Cloggers	10		
		Dressmakers	35		
		Milliners	14		
		Tailors	15		
		Others	54		
Total number of workshops on Register ...			215		

5.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspectors of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133)	7
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5) {	
Notified by H.M. Inspector	5
Reports (of action taken) sent to H.M. Inspector	5
Other ... ..	...
Underground Bakehouses (S. 101) :—	
Certificates granted during the year ... ..	...
In use at the end of the year	1

THE MIDWIVES' ACT.

In connection with the work under the Midwives' Act, the following has been done.

So many of the midwives in Warrington being illiterate, very constant supervision is needed to keep them from transgressing almost every rule of the Central Midwives' Board, but mainly owing to the indefatigable work of Miss Hoyle, the midwives are now well in hand and seem to regard the Local Supervising Authority not only as a power to be dreaded, but as a court of appeal and a help in time of need.

There are 26 midwives acting under the supervision of the local authority at present. During the year Miss Hoyle has paid 119 visits to their homes for purposes of inspection and enquiry.

There are some 2,000 births in the Borough every year, and supposing that 500 of them are attended from the first by medical practitioners, which is probably a fair estimate, it leaves 1,500 to be divided among 26 midwives, or at the rate of a little over one a week. It does not appear, therefore, that the town is ill supplied as far as numbers are concerned, though of course the cases of confinement are very unequally distributed.

From all but five out of the 26 midwives under supervision, notifications in accordance with the rules of the Central Midwives Board have been received during the year. They may be classified as follows :

Records of sending for medical help	...	196
Notifications of Still-births	...	86
Notifications of the death of the child	}	9
before the attendance of a doctor		
Total		<hr/> 291

The details of the visits paid by Miss Hoyle during the year under the Midwives' Act are as follows :—

Enquiries concerning still births	...	46
„ with regard to cases of	}	6
puerperal fever		
Other enquiries	...	100

During 1906 there were notified nine cases of puerperal fever, two of which were fatal, against 15 cases notified and nine deaths in 1905.

It would seem therefore that one of the early effects of the operation of this beneficent Act has been to stimulate the recognition of child-bed fever as a disease which is not always productive of death. It is significant that in past years the number of deaths so caused has generally been about equal to the number of notifications recorded at the Health Office. That it will also ultimately lead to a more general adoption of such methods of cleanliness as will tend towards prevention is the earnest hope of all who have the welfare of the mothers at heart, for it is well known that where not ending fatally the inflammatory processes occurring in child-bed fever are often productive of life-long misery and ill-health. There are, of course, many difficulties yet to be faced; but it is evident that a vast change for the better will ultimately result from putting the midwives under supervision, though a satisfactory result cannot be hoped for without infinite pains being taken by the committee's officials.

The following is a list of the names and addresses of the registered Midwives practising in the Borough of Warrington.

Mrs. Amelia Armitage,	12, Winifred Street.
„ Emma Birch,	84, Bramhall Street.
„ Sarah Bird,	93, Mersey Street.
Miss Annie Blackmore,	687, Knutsford Road.
Mrs. Annie Blease,	126, Greenall's Avenue.
„ Rebacca Boon,	67, Liverpool Road.
„ Jane Chadwick,	114, Forster Street.
„ Mary A. Eckersley,	69, New Road.
„ Mary A. Foden,	Barnard Street.
„ Ellen Hunter,	145, Mersey Street.
„ Matilda Jackson,	118, Wilderspool Road.
„ Lydia Jowett,	119, Marsh House Lane.
„ Mary Knott,	158, Orford Lane.
„ Sarah Lathey,	82, Ellesmere Street.
„ Esther Leather,	8, Florence Street.
„ Ellen Locker,	14, Sparling Street.
„ Martha Mather,	5, Paul Street.
„ Lavinia Mayres,	67, Hardy Street.
„ Mary A. Milner,	5, Gorsey Lane.
„ Elizabeth Rodgers,	41, Catherine Street.
„ Ann Norman,	Sandy Lane, Orford.
„ Eliza A. Shelley,	85, Winwick Road.
Miss Alice Singleton,	52, Marsh House Lane.
Mrs. Margaret Smith.	
„ Mary A. Smith,	23, Bostock Street.
„ Mary Worthington,	301, Thelwall Lane.



COUNTY BOROUGH OF WARRINGTON.

REPORT

OF THE

PUBLIC ANALYST

FOR THE

Year ending 30th December, 1906.

WARRINGTON :

MACKIE & Co., LD., SANKEY STREET.

LABORATORY AND ASSAY OFFICE,
CORPORATION STREET CHAMBERS,
WARRINGTON.

10th January, 1907.

TO THE CHAIRMAN AND MEMBERS
OF THE HEALTH COMMITTEE.

GENTLEMEN,

I have pleasure in submitting to you my report on the work done by me as Public Analyst for the year 1906.

During the year I have had submitted to me 201 samples taken under the Food and Drugs Acts. The following table gives a summary of the samples analysed, the samples adulterated, and the extent of the adulteration, from which it will be seen that 19 samples, or 9·45 per cent., have been reported against :—

	Exam- ined.	Adulter- ated.	Extent of Adulteration and action taken.
Milk	72	2	1 water added 9·4%. No action. 1 water added 10%. Dealer sum- moned and fined 10s.
Condensed Milk...	1		
Butter	52	2	1·4 and 0·42% excess of water. Dealer warned by letter.
Cheese	8	3	1 deficient in Fat 25%. No action. 1 deficient in Fat 38%. No action. 1 deficient in Fat 31%. No action.
Margarine	3	1	13 grains of Boric Acid per lb. No action.
Tea	4		
Coffee	2		
Cocoa	1		
Sugar	3		
Carried forward ...	146	8	

	Exam- ined.	Adulter- ated.	Extent of Adulteration and action taken.
Brought forward...	146	8	
Jam and con- fectionery ...	13	4	Salicylic Acid present 1, 2·1, 1·75, 3·5 grains per lb. Dealer sum- moned for supplying jam with 2·1 grains; case dismissed. No action in the other three cases.
Pepper... ..	3		
Beer	9	2	Both contained Arsenic ·011 and ·013 grain per gallon. Brewer cautioned.
Spirits: Brandy ...	4	1	Water added 1·5% No action.
Whiskey ...	4		
Gin	2		
Malt Vinegar ...	1		
Sausages	1		
German Sausage...	1	1	38 grains Boric Acid per lb. and coloured with red Aniline dye. No action.
Potted Meat ...	2	1	29 grains Boric Acid per lb. and coloured with red Aniline dye. No action.
Potted Shrimps ...	3	1	36 grains Boric Acid per lb. No action.
Rice and Pearl Barley, grains...	2		
Preserved Peas ...	1	1	2·7 grains Copper Sulphate per lb. No action.
Yeast	1		
Custard Powder ...	1		
Gravy Browning...	1		
Moseley's Food ...	1		
Sauce	2		
Cream of Tartar ...	1		
Health Salt... ..	1		
Tonic Herbs ...	1		
	201	19	=9·45 per cent.

The number of samples analysed, and the percentage of adulterated samples, is slightly less than the previous year, being 201 and 9·45 per cent. against 207 and 10·14 per cent. respectively. Taking the population

of Warrington at 70,000 we have taken in the past year 2·9 samples for every 1,000 persons, or one sample for every 348 persons; in London in 1905 4·7 samples were taken for every 1,000 persons, or one sample for every 211 persons. The percentage of adulterated samples for the whole country for the five years 1901 to 1905 has been 8·8, 8·7, 7·9, 8·5, 8·2. The average number of samples reported against in the boroughs of Lancashire in 1905 was 7·6 per cent., and in Cheshire 8·7 per cent. The extent of adulteration varied very much in the different towns; in 1905 it was 5 per cent. or under in Hyde, Stalybridge, Blackburn, Bolton, Burnley, Manchester, Salford and Wigan; above 5 and under 10 per cent. in Birkenhead, Stockport, Barrow, Bootle, Bury, Lancaster, Oldham, Preston, Rochdale, St. Helens and Southport; between 10 and 15 per cent. in Liverpool and Macclesfield; and above 15 per cent. in Blackpool and Chester, the highest being 20·3 per cent. in Ashton-under-Lyne.

MILK.

Of the two samples of milk reported against, action was taken only in one instance: the sample contained fat 2·97, and non-fatty solids 8·16 per cent. On comparing this with the milk taken from the farmer's cart, and at the farm, it was seen that 10 per cent. of water had been added and the dealer was fined 10s. In the other case the analysis gave fat 3·45 and non-fatty solids 7·91 per cent.; the farmer here was his own distributor, and on the following morning the Inspector went to the farm and took a sample after seeing the cows milked; this sample gave fat 3·72, and non-fatty solids 8·65 per cent., showing that between 9 and 10 parts of water had been added to every 100 parts of milk; no action was taken in this case because the fat was above the minimum fixed by the Board of Agriculture, but the sample was adulterated, and the Board has also fixed 8·5 as the minimum percentage of non-fatty solids.

In three other cases the fat has been 3 per cent. or below:—

No. 406 gave fat 2·98 per cent. and the farm milk 3·1, showing it to be naturally poor milk.

No. 459 contained 3·0 per cent. fat, the farm milk 2·86, 3·39, 3·44; it is worthy of note here that if the farmer had mixed the three tankards from which the three samples were taken, and which contained approximately the same quantity of milk the milk he delivered would have contained upwards of 3·2 per cent. fat, a figure well above the minimum.

No. 497, taken on August 8th, gave only 2·69 per cent. fat; on August 9th samples taken from the farmer's cart gave 3·42, 3·25 and 3·24. This farmer supplied milk from two farms, so the Inspector had to choose which farm to go to on August 10th to take samples after

seeing the cows milked. The one he went to gave milk with 3·7 per cent. fat, and while there the cart with the milk from the other farm came up, and on taking samples this milk contained only 2·88 and 2·73 per cent. fat; he could not go till August 23rd to take samples at this farm, but when he did I found the milk to be good, with 3·91 and 3·64 per cent. fat. The farmer explained this by saying he had altered the feeding of the cows, but the presumption is that the original sample was not genuine.

The careful way in which the Act has been worked in Warrington for the last two years has resulted in a considerable improvement in the quality of the milk supply, as will be seen from the following figures:—

	1904.		1905.		1906.
Number of samples.....	75	...	69	...	72
Average Fat.....	3·47	...	3·57	...	3·66 per cent.

On further classifying the samples according to their content of fat, the following interesting results are seen.

	1904.		1905.		1906.
Number of samples below 3 per cent. fat	12·2	...	9·1	...	4·4 per cent.
Number of samples between 3·0 and 3·2 per cent. fat ...	10·8	...	12·1	...	5·9 per cent.
Number of samples between 3·2 and 3·5 per cent. fat ...	43·2	...	31·8	...	26·5 per cent.
Number of samples between 3·5 and 4·0 per cent. fat ...	17·6	...	28·8	...	47·0 per cent.
Number of samples above 4 per cent. fat	16·2	...	18·2	...	16·2 per cent.

These figures are noteworthy in view of the strong agitation among farmers to get the minimum of 3 per cent. still further lowered; as far as the milk supply of this town is concerned there appears to be no reason for such a step, and the few odd samples of genuine milk that are below three per cent. are always proved to be due to the farmer not mixing the milk, or to the poor condition of his cows.

BUTTER.

Two samples were reported against as containing rather more water than the limit of 16 per cent.; the average quantity of water in the butter analysed during the past three years has been 12·1 per cent. It will therefore be seen that it pays well to blend a butter containing say 8 to 10 per cent. with water up to the legal limit, a practice that is supposed to be common.

CHEESE.

Of the eight samples analysed three were reported against as containing an excess of water together with a deficiency in fat. The following is the somewhat extraordinary composition of these three samples. In the last column, for purposes of comparison, I also give the limits for each constituent in ordinary cheese made from whole milk :—

	328		371		380		Cheese from whole milk.
Water.....	57·25	...	58·54	..	55·67	...	25 to 35 per cent.
Fat	12·05	...	9·82	...	10·57	...	25 to 40 per cent.
Casein	23·48	...	24·81	...	27·47	...	25 to 30 per cent.
Ash	5·32	...	5·27	...	6·20	...	3·5 to 6 per cent.
Price per lb.	6d.		8d.		7d.		

These figures show that these cheeses were made from partially skimmed milk, and were further heavily weighted with water, the price being out of all proportion to the quality; no action was taken, because the Board of Agriculture has not found it possible to fix any standard for the composition of cheese; even cheese made from partially skimmed milk, such as Dutch cheese, generally contains about 16 per cent. fat, and surely the public ought to be protected against such a cheese as 371 containing nearly 60 per cent. water, less than 10 per cent. fat, and sold at 8d. per lb.

BEER.

Of nine samples analysed two were found to contain arsenic in excess of ·01 grain per gallon, the limit suggested by the Royal Commission on Arsenical Poisoning. Both samples came from the same brewery and the brewer was warned; the remaining samples were either entirely free or contained only minute quantities of no importance. The majority of brewers are evidently keeping a close watch on their raw materials, but it is surprising that there should be found one who does not do so after the experience of six years ago.

SPIRITS.

During the year four samples of Brandy varying in strength from 18° to 26° U.P. have been submitted to me, and four samples of Whiskey from 20° to 23° U.P.; the analyses appear to indicate that there has been an improvement in the quality of both spirits since the many prosecutions for adulterating brandy with silent spirit. Two samples of Gin had a strength of 34° and 22° U.P.

POTTED MEATS.

In the course of the summer months the tinned meats sold in this country were the subject of a special investigation. These samples were not taken under the Food and Drugs Acts and a special report has been written on them ; no preservatives were found in any of those submitted to me, and oxide of iron in small quantities was the only colouring matter present, but the potted meats, in which I include sausages, German sausage, potted shrimps and potted lobster, in many cases contain large amounts of boric acid, and are often coloured with a red aniline dye. Of eight samples examined four were found to contain from 29 to 60 grains of boric acid per lb., and three of these—German sausage, potted meat, and potted lobster were also coloured with a red aniline dye. The last-named contained 60 grains of boric acid per lb., but it was not taken under the Food and Drugs Acts and therefore no action was possible ; in the other cases no action was taken.

BOTTLED GREEN PEAS.

The only sample taken contained copper equivalent to 2·7 grains copper sulphate crystals to the lb. Here again there is a practice which might well be stopped, but no action was taken in consequence of the difficulty in this, as in other instances of like kind, in proving the constituent to be harmful.

PRESERVATIVES AND COLOURING MATTERS.

In addition to the presence of artificial colouring matters, large quantities of boric acid in potted meats, and copper in bottled peas, salicylic acid is still commonly present in jam and preserves ; out of 13 samples five contained this chemical in quantities ranging from 1 to $3\frac{1}{2}$ grains per lb. One important prosecution was instituted in the case of a jam, No. 329, which contained 2·1 grains per lb. The makers defended the action, and expert evidence was given on both sides, with the result that the case was dismissed on the ground that from the evidence given there appeared to be a doubt about the physiological effect of salicylic acid upon the human system.

Of the 19 samples reported against, 9 have been condemned for the presence of preservatives, or colouring matters, or both combined. There is great difficulty in getting convictions in such cases even when the limit recommended by the Departmental Committee on preservatives and colouring matters in foods is exceeded. The result has been that the only case of this kind taken into court was lost. No one would object to these substances if they were first proved to be harmless, and are not added for purposes of adulteration, but in the

case of preservatives and colouring matters expert evidence can always be obtained on both sides showing that there is much doubt in the minds of Medical men about their action. The United States has passed a Pure Food Bill, which came into operation on January 1st, prohibiting salicylic acid and aniline dyes in food stuffs, and quite recently Dr. W. H. Wiley, Principal of the United States Department of Agriculture, has published the result of a large number of experiments carried out by himself to ascertain the effect of salicylic acid upon the human system. These lead conclusively to the opinion that even in small quantities it has an injurious and depressing effect. In view of these results, and the doubt that appears to exist in the minds of some medical men, it would appear advisable to give the consumer of the food the benefit of any doubt, and forbid the presence of salicylic acid and aniline dyes in food.

None of the samples of milk or butter contained preservatives.

I remain,

Mr. Chairman and Gentlemen,

Yours faithfully,

FREDK. G. RUDDOCK, F.I.C.

~~~~~



